Electric Railway Journal

Consolidation of Street Railway Journal and Electric Railway Review

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MORRIS BUCK, *Managing Editor*

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Take a Leaf from Henry Ford's Notebook

HENRY FORD has a sharper insight into the mass mind of America than any other automobile maker. That is why he sells as many cars as all the rest put together. So long as his product was the only reliable low-priced article, he did not care how much criticism was directed at its ungainly outlines or its invariably sable shade. "Take it or leave it," said the wizard of Dearborn—and most of them took.

Finally, now that his worthy rivals have offered good-looking low-priced cars, Mr. Ford has promptly slashed his prices and succumbed to the "stream line" demand. Today he has made a further concession to the public—the new Fords will be available in hues that cheer rather than those that sadden the landscape.

Thus the great Henry maintains his reputation for sagacity. He sees that cheapness and reliability no longer suffice to sell a maximum number of his vehicles; that the jibes at their ugliness caused hesitation among thin-skinned prospects; and that the American people want comfort above all.

Can street railways afford to ignore this lesson? What boots it to cry "Our wares are cheapest" to people who lead the world in comforts and luxuries? The plain fact is that the American public is tired of seeing the same old car designs, the same old car colors, the same old "Take it or leave it" attitude. They see change and diversity everywhere else and accept it regardless of expense. Most people would rather pay a dime for cushions than a nickel for slats. No automobile manufacturer has yet had the temerity to put out a slat-seat instead of a cushion-seat automobile.

So let us learn from Henry Ford to give the people what they want—and to charge accordingly always.

Better Transportation Requires Full Knowledge of the Problem

SINCERITY of purpose and honesty of word and action form the bulwark of successful living. Only by a congregation of successful lives working in harmony toward a common goal can an industry progress in the truer sense of the word. Too frequently the mistake is made of forcing forward a single idea or a single personality in such a way that perspective is lost and the picture becomes incongruous.

In its early days an industry often consisted of one man. Today most industries consist of hundreds and often thousands of individuals. With this structure personal success has the added duty of co-operation with many others, since the job as a whole is more important than is any individual. The greatest personal success is often gained by actual retirement of personality.

Expanding the analogy of an individual to cover a distinctive type of service, then transportation as an industry is facing a like situation today. For many years the field of the electric railway was practically a monopoly. Almost unrecognized, the taxicab created a field of its own. Along with it the private automobile has had a most phenomenal growth. And now the bus looms up in proportions undreamed of several years ago. Each of these new services has increased the travel habit in far greater proportions than their combined effect on the electric railway industry. It would be surprising indeed if 17,500,000 automotive vehicles could be spread over the United States without having its effect on almost every factor of our lives. Likewise, it cannot be expected that more than 34,000 auto buses operating as common carriers will not affect the business done by the 73,000 electric rail cars in operation today.

Just as the individual or the individualistic idea cannot dominate an industry, neither can one type of carrier dominate transportation. All types must be utilized along economic lines and each employed to greatest advantage. The job is bigger than either the railway or the bus. The organization that succeeds in co-ordinating the whole must have a true perspective of the greater problem.

The Transportation Man Must Merchandise His Product

CONDITIONS today in the urban transportation field, and in the field outside the large centers as well, are those of competition. The private automobile has wrought a profound change in the situation. The higher the fare and the poorer the ride on the public vehicle the greater the appeal of the individual motor car.

Even though the railways are carrying passengers in greater numbers than ever before, they have failed in that they have allowed an enormous growth of transportation which they have made no serious attempt to capture. In an article in last week's issue it is shown that, instead of carrying the lion's share of the local riders, the railway is but one factor, and that a minor one, in the total. The statement in itself is not disconcerting as it shows that the automotive vehicle has largely developed a field of its own, and that only incidentally does it compete with rail service. The possibility for traffic grows out of the vastly increased field and the greater riding habit that exist today.

These ninety billions and more of automobile passengers have sprung up in a short while because the

vehicle has been provided and the way has been cleared for more travel. The growth of the automobile industry and of good roads are the result of a public demand, even though the manufacturers have had no small share in the creation of that demand. Surely a portion of the need could have been met by the public carriers had their foresight ten or fifteen years ago been as good as their hindsight is today. Surely the adoption of a better merchandising policy on the part of the railways would have brought the public to see that some of these rides, at least, could have been made to advantage on the railways.

Much water has gone over the dam, but still it is not too late to attract this class of traffic. First, however, the transportation manager, with full visualization of his problem, must provide a service that will appeal to the public. Then he can get back of a selling campaign that will attract more and more riders. With faith in himself and faith in his product, the transportation man should be able to build a business that will far exceed any accomplishment in the way of handling the riding public that has been achieved in the past.

When Does the Status of the Passenger Cease?

SINCE a common carrier owes certain obligations to its patrons in the way of the safety of their transportation, it is important to determine the exact time when the relationship of passenger and carrier ceases. Usually this relationship is considered to terminate when the passenger leaves the car, but it does not always end at that time. The railway company still has to be sure that its passengers are not invited to alight at hazardous locations. This applies even to persons who refuse to pay fare or who ride past the station to which they have paid fare or are put off for disorderly conduct. They must be ejected at a safe place.

On the other hand, the status of a passenger as regards the liability of the company in providing for his safety may cease before the passenger actually leaves the car, even when he had paid his fare and is not being ejected. Instances of this kind are much more uncommon, but a decision of the Supreme Court of Minnesota handed down June 26 cites one instance of this kind and defines the law for it in that state. As the conditions under which this case arose are becoming more general in other states, the decision is of more than usual interest. It relates to an injury occurring where a car, equipped with platform doors, is stopped at a regular stopping point, but an alighting passenger is struck and injured by an automobile before his foot is finally off the last step of the car.

Of course, a passenger could be injured in this way only if the automobile driver violated the usual ordinance requiring it to stop at a fixed distance from a trolley car discharging or receiving passengers. Hence, the owner or the driver of the offending automobile is primarily responsible for the accident, but if both driver and owner of the automobile are financially irresponsible, the injured person would probably prefer to sue the railway on the theory that the duty of the company obliged it to see that passengers alighted safely, consequently if he still had a foot on the car step, he was a passenger.

In reaching its decision that the company should not be held responsible for injuries of this kind, the Minnesota Supreme Court considered first whether such accidents can be avoided more easily by action of the alighting passenger or that of the motorman or conductor. Obviously, the answer to this question is the passenger.

The motorman and the conductor have no way of knowing the moment when a driver will break the law by coming too close to the trolley car, nor could they easily stop a passenger from alighting in case of danger after he had started to do so. It is the alighting passenger who can most readily see danger of this kind and avoid it. The law gives him all reasonable time, in the circumstances, to leave the car. He is not required by anyone to advance into a zone of danger, and for him the duty to avoid danger is simple and easy, whereas it would be burdensome and impracticable if placed on the railway company. In consequence, the State Supreme Court held that a rule which was not reasonably susceptible of practical obedience would produce injustice, and it decided that there was no negligence on the part of the company when an alighting passenger was struck in such circumstances before both of his feet were on the ground.

Making It Easy for the Casual Rider to Pay His Fare

FEW mercantile houses make it difficult for the casual customer to know how and when to pay for what he has purchased. Why should many electric railways do so?

During the past few years the number of methods of fare collection has increased rapidly. Once it was the almost universal practice for the passenger to board the car, take his seat and pay fare when the conductor came through. Now we have a variety of pay-as-you-enter, pay-as-you-pass, and pay-as-you-leave collection schemes.

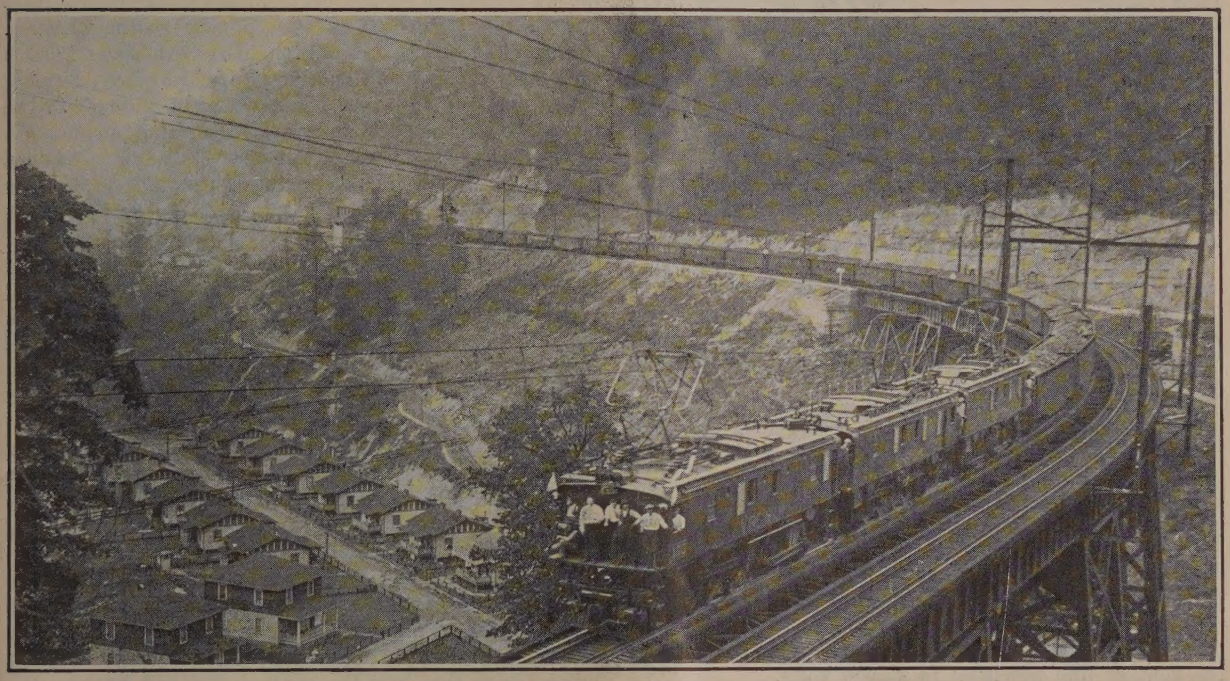
Not infrequently different methods of fare collection are in effect on different car lines operated by the same company in the same city. For the regular riders this variety occasions no inconvenience. They are familiar with the operating methods of the local railway and know exactly what they are expected to do. But the occasional rider, or the stranger from out of town, is often at a loss to know how to pay his fare and when to pay it.

Usually there are no signs in the car to tell him what to do. Possibly he is ignorant of the rate of fare. If he tentatively proffers a dime or a quarter as he enters the car, he is likely to be told in a bored tone "Pay when you get off." If he tries to go directly into the car, he may be called back to pay his fare. In either case he is embarrassed, and thereafter harbors a slight grudge against the company.

No necessity exists for thus forfeiting the good will of the occasional customer. Simple signs to tell boarding passengers when to pay fare, and how much, could be placed on all cars at small cost. If it were necessary to change the method of fare collection the signs could be changed to correspond. This practice of informing the passenger what to do has been followed with marked success by a number of railways. Where it has not been done the management might well give careful consideration to its advantages.

Virginian Railway Electrification Opened

Service Officially Inaugurated on Sept. 21 Marks New Era on This Heavy Coal Road—By Hauling 6,000-Ton Trains Up the 2 per Cent Grade, the Capacity of the Entire System Is Increased—Radio Communication Between Locomotives Being Tried Experimentally



In the Tests the Electric Train Readily Pulled Away from the Steam Train, the Front End of Which May Be Seen Far in the Rear

WITH the haulage on Sept. 21 of 6,050 tons of coal in a single train up the 14-mile ruling grade between Elmore Yard and Clark's Gap, W. Va., electric operation was officially inaugurated on the Virginian Railway. The train consisted of 62 cars of coal, a portion of which were of 50 tons capacity and the remainder 116 tons capacity. Including two electric locomotives, a caboose and a private car, the total weight moved was slightly more than 8,000 tons. The distance was covered in a running time of one hour, as compared with an average of 2½ hours for the same distance with lighter trains under steam operation.

The tests of the electric locomotives were made under the personal supervision of W. A. Gore, general manager; J. W. Sasser, superintendent of motive power, and J. E. Sharpley, electrical engineer.

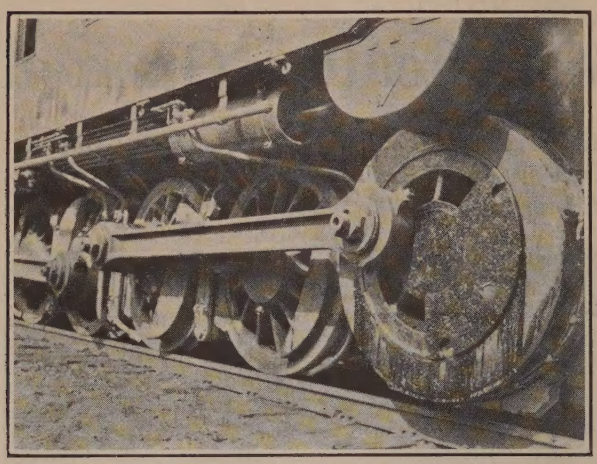
The section on which electric operation has begun represents the eastbound ruling grade of the entire system. There is a rise of more than 1,000 ft. in a distance of 14 miles. The curvature in this section is considerable. For the entire 14 miles the compensated grade is 1.979 per cent, while the maximum grade is 2.11 per cent.

Several electric trains were operated up the grade during the previous week. While the running times varied slightly, the difference was very small, as the induction motors on the locomotives do not permit of any considerable variation in speed, either up grade or down.

One problem encountered during the tests was to obtain a sufficient number of loaded cars. The average daily movement eastbound under normal conditions is about 30,000 tons of coal. Under electric operation it will be possible to handle this up the grade in some five trainloads, hauled by one road engine and a single pusher, as compared with 5,500-ton steam trains hauled by one 2—8+8—2 road engine and two 2—10+10—2 pushers. These Mallet locomotives are the heaviest ever built for any service.

Some details of the electrification and of the electric locomotives were published in this paper for May 30, 1925, page 843. The weights of the three cabs have been increased slightly from those estimated. The end units weigh 429,300 lb. each, while the center units weigh 426,100 lb. This makes the total weight of the locomotive 642½ tons, of which approximately three-fourths is on drivers. The starting effort at 25 per cent adhesion is 236,325 lb. The motors are wound for two speeds, approximately 14 m.p.h. and 28 m.p.h. At the low speed the one-hour rating of the three-cab locomotive is 6,090 hp., while at the high speed it is 7,125 hp. During acceleration, however, as much as 20,000 hp. can be developed. It is further possible to increase the power of each locomotive by the addition of a fourth cab in case the tonnage to be handled requires this change.

In all 36 cabs have been ordered, and are being assembled into ten three-cab locomotives for road service and six single-cab locomotives for switching purposes. These are identical in arrangement, except that the center cabs of the three-unit locomotives have no control, and the draft gear is modeled for an articulated joint only,



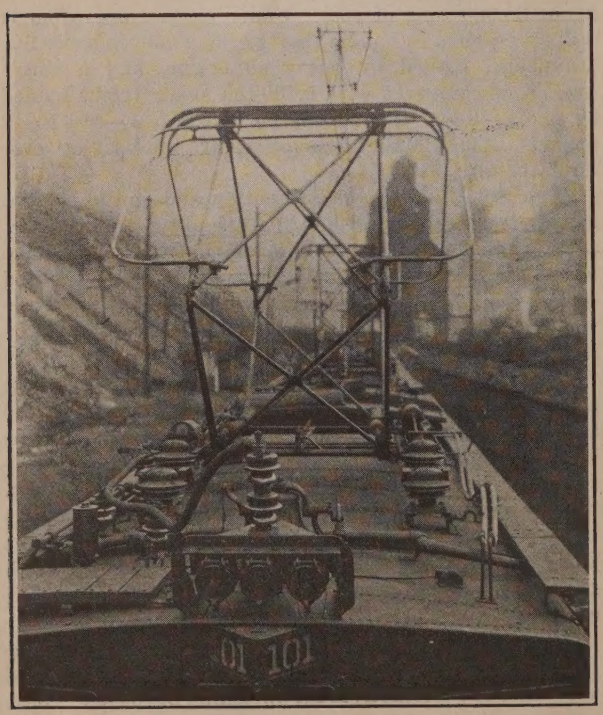
Each of the Three Cabs of a Single Locomotive Has Duplicate Pairs of Driving Axles Connected to Twin Motors, Through Side Rods and Gears. One Pair of Drivers and Its Gear Are Shown

while the ends have standard M.C.B. couplers. Each cab has two complete sets of running gear, as shown in one of the illustrations.

A shop for service of the electric locomotives has been built at Mullens.

The entire electrification is supplied from a power plant constructed by the railway at Narrows, W. Va., on the New River. This plant generates 25-cycle, three-phase current in four 15,000-kw., 11,000-volt turbo-generators. Transmission is at 88,000 volts. The contact line is supplied with 11,000-volt, single-phase current through step-down transformers. In case the future loads make it necessary it is planned to increase the contact line potential to 22,000 volts.

The overhead construction has been erected between Mullens and a point about 2 miles east of Princeton, W. Va. Plans have been made for extending the electrified zone eastward to Roanoke, Va., a route distance of 134 miles.



Pantographs of a Particularly Heavy Type Are Mounted on Each of the Three Cabs of a Locomotive

Radio Communication Between Locomotives

Trains on the electrified section are so long, some of them nearly a mile, that it is a difficult matter to relay signals from the head locomotive to the pusher. Whistle signals are not entirely satisfactory, particularly as the air whistles used on the electric locomotives do not have carrying power equal to that of the steam whistles. Another method that has been used with some success is for the forward locomotive to back slightly, putting slack into the train and transmitting a "bump" to the pusher. This causes an overload on the pusher. In some of the starts during the tests the entire load was accelerated by the pusher. Unless the head locomotive immediately takes back its share of the load there is likely to be trouble.

Two of the electric locomotives, those used in the official tests, are equipped for communication with a novel form of wired wireless. Each locomotive has a transmitting and receiving radio set, mounted in the center cab. Accompanying illustrations show the appearance of one of these sets through the end door of the cab.

The transmitter uses a 50-watt master oscillator vacuum tube operating two 50-watt power amplifying tubes in parallel. Power is supplied by a small motor-generator set supplied from the 32-volt storage battery. The B batteries are self-contained, and the tube filaments are lighted with alternating current. Transmission from one end of the train to the other is done at 500 cycles. A short antenna has been erected on the center cab of each locomotive. The high-frequency current jumps from this into the contact line and back to the antenna at the other end of the train.

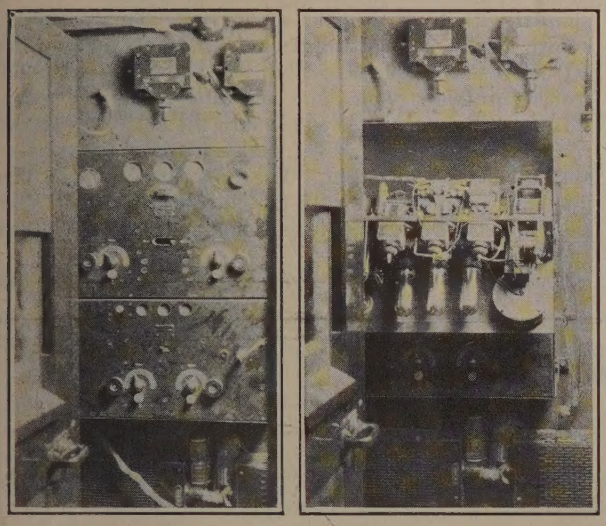
Signaling is done by a remote-controlled relay from the motorman's position. In the experimental set both code and phone signals may be used. The code is given by a cord hanging down from the roof of the cab, corresponding to the whistle cord. Regular whistle signals are used in this case, and two-way communication can be established so that each motorman may acknowledge the signals of the other.

The phone signals are quite satisfactory while the train is standing still, but when it is running extraneous noises obliterate nearly all of the voice. The code signals are, however, entirely audible above the general noise level.

Since the only equipment used is that on the locomotives there is little difficulty in the installation. Different frequencies make it possible to establish communication between trains as well as between the two locomotives at the ends of a single train. It is stated that plans are now being worked out to use the same system on steam locomotives, using telegraph or other wires alongside the track for transmission of the carrier current.

The transmission line and overhead construction for the contact system were designed and erected by Gibbs & Hill, consulting engineers, New York. All the electrical equipment, including the radio communication system, was furnished by the Westinghouse Electric & Manufacturing Company. The mechanical parts of the electric locomotives were built by the American Locomotive Company.

According to President C. H. Hix of the Virginian, the inauguration of electric service marks an important step in the history of mass transportation. Continuing, he said: "The electrification was contracted for in May, 1923, in order to provide for the further growth of traffic. The main obstacle is the 14-mile grade from Elmore to Clark's Gap, since after the latter point is reached the maximum grade against traffic is one of 0.6



Exterior and Interior of the Radio Sets Used for Communication Between Locomotives on the Wired Wireless Principle

per cent crossing the Allegheny Mountains at Whitethorne. Though the heavy grade section from Elmore to Clark's Gap has been double-tracked, restriction to growth of traffic under steam operation occurred at this point. In order to increase capacity the alternative was either to increase the number of tracks and employ more steam locomotives or to electrify.

"Electrification, which would permit larger trains to be run at double steam speed and thus approximately double the capacity of the grade section, was decided upon as the most efficient program. All the preliminary tests have indicated that our expectations as to the value of electric operation will be met."

Number of Accident Witnesses in Los Angeles Increased

AN INTERESTING campaign to increase the number of witnesses to accidents procured by trainmen has been conducted by the Los Angeles Railway, Los Angeles, Cal., with gratifying results. A gain of more than 20 per cent in the number of names turned in to the claim department with accident reports was made within the twelve months of 1924, and even greater gain is being made this year.

The campaign started in January, 1924, when the average number of witnesses per accident was 4.27. Stories in the company publication, *Two Bells*, emphasized the importance of procuring witnesses and giving suggestions as to the best method. The competitive angle was injected into the campaign by showing the gains made by the different divisions and their standing at the end of each month.

The division superintendents instructed the clerks to call all trainmen to the office when a witness report indicated that the number of name cards filled out by passengers was low in proportion to the number of people on the car. This personal and individual work with the trainmen was one of the most effective steps in the campaign.

A mark of an average of five witnesses per accident was set up soon after the campaign was put under way, but it was not until December of 1924 that this goal was reached. In that month 9,068 witness cards were turned in with 1,669 accident reports, making an average of 5.43 witnesses per accident. The highest figure on record was established last April, it being 5.62 witnesses per accident for the system. In every month of 1925 the average of five witnesses has been exceeded.

The claim department reports that the efforts of the transportation department in this campaign have been of invaluable benefit in making investigations.

Signals Aid in Making Transfer Connections

SIGNAL lamps operated in multiple with the track diagrams which are standard equipment on the rapid transit lines of the Boston Elevated Railway are used at Maverick Square station to aid in arranging connections between surface cars and tunnel trains. The apparatus consists of a two-sided metal case suspended from the ceiling of the station and containing eighteen 5⅜-in. white lenses arranged horizontally nine on each side. Between each pair of these lenses there is a 55-volt, 25-watt lamp. Back of each lens is a green roundel.

Each of the lamps represents and is controlled by a block signal track section in the tunnel. The entire distance between Atlantic Avenue and Maverick Square Station is covered in this way. The presence of a light indicates that the section which controls that light is unoccupied. Absence of a light indicates that a train is occupying the section. Thus, the board informs the

Signal Board at Maverick Square Station Shows the Location of Eastbound Trains in the East Boston Tunnel

surface car starter of the approach of all eastbound trains. When a partly empty surface car is ready to leave the station and the board shows that a train is due within a few seconds, the starter holds the car, thus permitting the passengers on the train to transfer without delay.

Boulevard Bus Service Operated in New Orleans

Fourteen Buses Running Over Approximately Eight Miles of Route Serve Newly Developed Residential Districts and the Old French Quarter—Mild Climate Is a Helpful Factor

NEW ORLEANS, the third largest city in the United States in point of area, is generously equipped with electric railway facilities and the bus is a comparatively recent innovation. A little more than a year ago, however, the New Orleans Public Service, Inc., undertook to serve some of the newly developed residential districts by buses Five such lines are now in operation. The total length of these routes is about 8 miles. Fourteen buses are used.

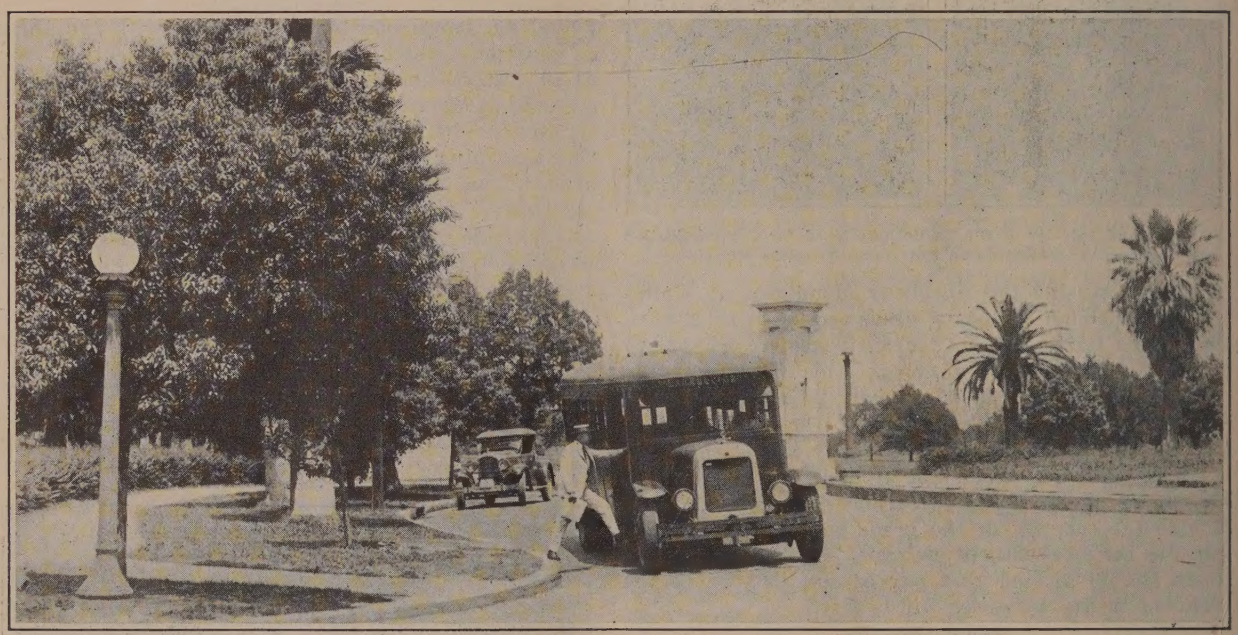
Bus operation in this city was originally commenced under the auspices of one of the large department stores. A line parallel to an important street car route was operated for some time. It did not prove to be a serious competitor to the railway, however, and was abandoned after a short life.

When it became apparent that buses could be used advantageously as feeders to the street railway system the New Orleans Public Service, Inc., took over and rebuilt the five 25-passenger Mack buses formerly operated by the department store. Nine 29-passenger Yellow coaches were bought.

Of the five bus lines now in operation, four serve newly developed residential districts. These are the Carrollton Avenue line, with a round trip mileage of 2.9; the Canal Boulevard line, 1.8 miles; the St. Claude line, 3.8 miles, and the Gentilly Road line, 2.0 miles. The Frenchmen Street bus line extends through the poorer residential section of the city, with a round trip length of 5.16 miles. That portion of the line which passes through the old French quarter is interesting to the tourist. It reaches the famous Jackson Square or Place d'Armes, the St. Louis Cathedral and the Pontalba Building, which was the first apartment house erected in America. Other points of interest reached by this line are the historic French market, the home of General Beauregard and the famous Ursuline Convent.

The Carrollton Avenue bus line extends from the baseball park to City Park. Carrollton Avenue is a beautiful street, originally a double roadway on each side of the canal. Later the canal was filled in, sodded over and planted with trees to make a parkway. This parkway, known locally as "neutral ground," not only adds to the attractiveness of the street but also separates vehicular traffic into two streams and facilitates rapid movement. Buses are required to keep close to the curb line on the residential side of the street, making it easy for passengers to board and alight. The Carrollton Avenue bus line makes connections with the Napoleon Avenue, West End, Spanish Fort, Cemetery, Canal belt, Esplanade belt and City Park car lines.

The fare on the buses is 7 cents, the same as on the cars, and free transfers are interchanged. The headways on the five bus lines are thirty, fifteen, ten, seven and six minutes. No attempt has been made to coordinate bus schedules with those of the street car lines.



Bus of the New Orleans Public Service, Inc., on the Carrollton Avenue Line, Which Serves a Newly Developed Residential District

Buses are stored in a steel garage, modern in every respect. This is located adjacent to the Canal Street carhouse of the railway. Bus drivers are selected from the ranks of the trainmen. Such positions are open to the men on the basis of priority in the service.

Since bus service has been undertaken by this company many requests have been received for similar service in other sections of the city. In general, the public has shown marked enthusiasm for the buses. The mild climate which prevails all the year is particularly favorable to bus operation. No difficulties are experienced on account of freezing of radiators and no snow or ice impedes the movement of buses. It is the intention of the company, however, to go slow with the installation of new bus lines and to determine carefully their practicability before undertaking operation.

Mercury Arc Rectifiers for Railway Work

First Exhibit of 500-Kw. Unit Planned by General Electric at American Electric Railway Convention—Under Development Many Years—United Traction Company of Albany, N. Y., Has Had a Unit in Successful Operation Many Months—Higher Efficiency and Less Noise than Rotary Converters—More Complete Details Expected Soon

IRON mercury-arc rectifiers may soon become an important competitor to rotary converters and motor-generator sets in the conversion of alternating to direct current. Mercury vapor carrying an electric current in a vacuum between a metallic anode and a mercury cathode acts as a one-way path, and if an alternating current is applied between two anodes the path for one-half of the wave will be from one anode to the cathode, and for the other half of the wave from the other anode to the cathode, making the cathode always positive. This principle has long been used in small-sized units for charging storage batteries from alternating current, but has only recently been introduced in large sizes.

Development work on large-sized rectifiers extends back at least twenty years in this country as well as abroad. The modern apparatus, while not entirely standardized, has apparently reached a stage in its development where it can be depended upon to function reliably for railway supply and other direct-current uses.

Both Three-Phase and Six-Phase Units

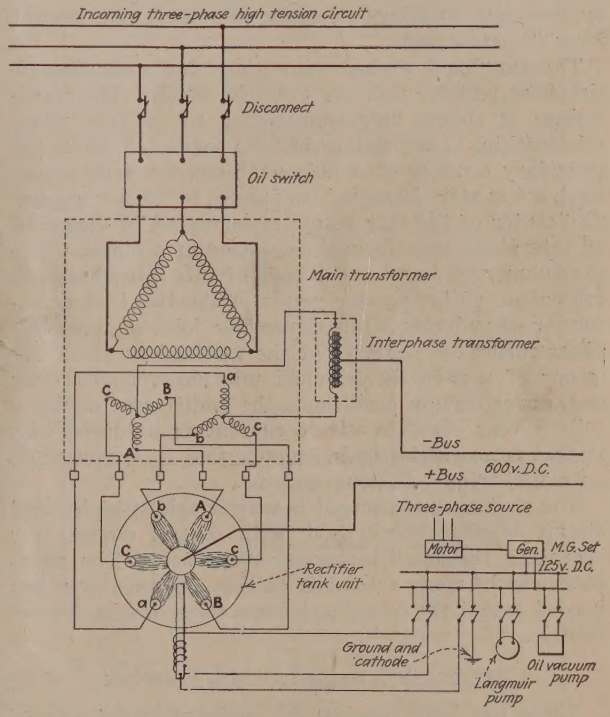
The modern rectifier is made in both three-phase and six-phase units. The tank proper consists of a round open-hearth steel tank about 4 ft. in diameter for the 500-kw. size, with either three anodes for the three-phase unit or six anodes for the six-phase unit, projecting from the top of the tank. The cathode is in the center at the bottom of the tank and consists of a quartz cup containing about 45 lb. of mercury. The tank is jacketed so that it may be cooled by water circulating between the inner and outer tanks. Where two tanks are used the cathodes of each tank are connected together electrically and form the positive terminal of the direct-current circuit.

In order to start the set after a vacuum has been established a small auxiliary anode is dipped into the mercury and withdrawn by means of a solenoid-operated mechanism mounted at the top and in the center of the tank. This draws an arc between the contact and the mercury. This establishes the mercury vapor in the tank, immediately starting the rectifier action between the several anodes and the cathode. The current for this auxiliary arc is derived from a small motor-generator set.

Accessories for a mercury arc unit consist of two exhaust pumps in series. The first is a motor-driven pump that is capable of reducing the vacuum to about 50 microns, after which the Langmuir condensation pump used in the General Electric rectifier will reduce this vacuum to less than one micron (1 micron equals one-thousandth of a millimeter of mercury).

In addition to the two pumps for each tank it is necessary to have a vacuum gage and a small motor-generator set of 2 or 3 kw. capacity that will give approximately 125 volts to operate the exciting arc and auxiliaries.

The United Traction Company of Albany, N. Y., has had in almost continuous operation on its system a General Electric 500-kw., 600-volt set since Dec. I, 1924. The load factor on this particular substation has purposely been held rather high, averaging about 70 per cent throughout the day. It has been reported that the efficiency of the rectifier units in operation has been as high as 94 per cent throughout the day, measured from the a.c. to the d.c. bus, whereas the rotary converter units installed previously had an



A Schematic Diagram of a Six-Phase Rectifier Equipment Showing the Principal Connections

over-all efficiency under similar conditions of 87 per cent. Under both conditions this includes transformation from an 11,000-volt, three-phase, 40-cycle circuit and the energy used in accessories necessary to the rectifier installation.

The losses in the rectifier itself, except for the small amount of energy used to drive the accessories, appear as a potential drop of approximately 20 volts between the anodes and cathode. This is about constant under all conditions and at all voltages. For this reason the efficiency at low loads of the rectifier unit is relatively higher than that of a synchronous converter or a motor-generator set. Also, it is relativeley greater at higher d.c. delivery voltages.

In recent proposals by the General Electric Company for 1,500-volt unit the over-all efficiencies at normal load have been given as 93.9 per cent, at three-

quarters load 94 per cent and at half load 93.8 per cent, with the regulation from zero to full load of 6 per cent.

The Albany unit has been operating successfully in parallel with rotary converter equipment a little over 1 mile distant, with tie connections of at least 1,000,000 circ.mil of copper.

Satisfactory Seal Has Been a Great Difficulty

One of the greatest problems has been the construction of a seal at the anode that will stand the temperature changes and remain absolutely airtight. The latest seal used is made of a heavy glass cylinder 4 to 5 in. in diameter, into the bottom and the top of which is spun an iron cap. The process involves the heating of the glass and iron during the spinning process to a point where apparently an actual fusion takes place. The result is a particularly strong unit that has been successful in remaining airtight over a considerable period. The anode connection is carried through the center of the glass tube by means of a flexible copper cable, and the anodes proper are supported and insulated by porcelain bushings in order to remove the weight from the glass seals.

The simplified wiring connections for a single-tank six-phase rectifier unit are given herewith. The transformer is shown diagrammatically to indicate phase relationship. The primary is delta connected, while the secondary consists of double windings for each phase. Each set is star connected, as shown, to the six anodes. The center of the star points is connected by means of an interphase transformer consisting of a single winding submerged in oil. The ends of this interphase coil are connected to the star points of the two load transformer secondaries, while the middle joint of the interphase forms the negative of the rectified current. By means of a properly designed interphase transformer and, under certain conditions, the addition of damping coils a very constant direct current is produced that is free from ripples or harmonics that have any effect on neighboring telephone systems.

The switching equipment is very simple, a high-speed circuit breaker being used, with control circuits for operating the small motor-generator sets. The apparatus can be made automatic so that an operator is not needed except for occasional inspections and in case of trouble.

Recent Activities in This Country

There has been considerable activity in the sale of rectifier units, as witnessed by the fact that the same manufacturer has recently accepted orders for two 1,500-kw. units for the operation of Illinois Central trains on the terminal section now being electrified at 1,500 volts direct current at Chicago, Ill. Likewise the Chicago, North Shore & Milwaukee Railroad has ordered a 1,000-kw., 600-volt unit, and the Chicago, Lake Shore & South Bend in planning the changeover from single phase to 1,500-volt direct current has purchased one 1,500-kw. and three 750-kw. units, all designed for 1,500 volts, as it is the plan to continue operation over the Illinois Central tracks into Chicago.

The Brown-Boveri Company has also built and installed several units in the United States. A 250-kw., 500-volt set was installed by the New York Edison Company. This was described in *Electrical World* for Jan. 31, 1925. In the Ford motor plant at River Rouge is installed one 500-kw., 600-volt unit and four more are on order. On the Commonwealth Edison system in Chicago there is a 500-kw., 600-volt unit and two 3,000-kw., 1,500-volt units (several tanks in multiple) on order and intended for use in connection with the Illinois Central electrification. The Chicago Rapid Transit Company also has in operation or on order several units aggregating 1,800 kw. to be operated at 600 volts.

Another advantage of the mercury arc rectifier unit is the almost complete elimination of noise, as the small hum of the motor-generator set and the quiet action of the pumps are the only noises that can be heard in a rectifier station. Cooling of the rectifier unit by water makes it possible if necessary to install the unit below the surface of the ground, as the heat can readily be carried away by the circulating water. A 500-kw. rectifier tank with pumps will take a projected floor space of about 4 ft. x 6 ft. and a height of about 7 ft., it being necessary to have about 3 ft. clearance above the unit in order to remove the parts for inspection or other purposes. The weight, complete, of a 500-kw. tank is about 2,500 lb., or approximately one-fourth the weight of a modern 60-cycle rotary converter of comparable size.

It is reported that the General Electric Company will exhibit a rectifier substation in operation at the coming convention. Undoubtedly it will be a matter of great interest, as much attention has recently been attracted to this type of equipment. Certain details are still in a development stage, in that manufacturers have not had the experience of long periods of actual duty to prove their development.

Seven Operators' Forms Combined in One

Trip Sheet Recently Adopted by Erie Railways Has Been Designed to Replace Numerous Forms that Formerly Had to Be Carried by Car Operator

SIMPLIFYING the work of the car operator has resulted from the adoption of a new form of trip sheet by the Erie Railways, Erie, Pa. On this one form is collected all of the information it is considered desirable to obtain from the car operator regarding his day's work. It also eliminates the necessity for issuing seven separate forms to the operator and collecting, auditing and filing them.

The new trip sheet, which is 9 in. x 11¼ in., and is standard printed on manila stock, is reproduced in the accompanying illustration. On its face, in addition to the usual trip record, are included blanks for recording fare box numbers, transfers issued and received, time worked by the operator, and economy meter readings. At the right are detachable portions to drop in the cash box and for reporting car defects. On the reverse is shown a complete list of mileage points for the city lines and places on the detachable portions for recording additional information regarding the condition of the car.

When the operator takes out his car in the morning the method of procedure is as follows: First he fills out his cash box slip (in the upper right-hand corner of the form), detaches it and deposits it in the fare box. Next he fills in the economy meter reading and the information at the top of the form. Directional trans-

ers are used, so that he fills in the ommencing number under "Transers issued" for two directions. The ther two transfer records are used in ase the transfers do not run in serial otation. The spaces immediately eneath the transfer record are used o show what fare box and cash box re used. The second and third spaces or fare box and cash box numbers re used only in case trouble develops vith the boxes. Ordinarily, they are ransferred along with the operator nd turned over to the man completng the run.

The trip record is filled out in the rdinary manner, leaving and arriving ime, car mileage and transfers colected being entered in the proper olumns. The transfers collected from assengers are placed in trip envelopes for each trip. All tickets and ash are deposited in the fare box by he passengers, so that no record is equired.

Remarks | O. K. | Foreman | Remarks | O. K. | Foreman

Mileage Points

Station	No.	Station	No.
Public Dock	1	26th and Ash Sts	40
2nd and State Sts	2	26th and Penn'a Ave	41
4th and State Sts	3	23rd and Penn'a Ave	42
State and North Park Row	4	18th and German Sts	43
State and South Park Row	5	18th and Parade Sts	44
8th and State Sts	6	18th and Wayne Sts	45
12th and State Sts	7	19th and Wayne Sts	46
17th and State Sts	8	19th and Nickel Plate	47
18th and State Sts	9	Buffalo Rd. and East Ave	48
4th and Walnut Sts	10	Buffalo Rd. & Old City Line	49
4th and Cascade Sts	11	Buffalo Rd. & Downing Ave	50
8th and Myrtle Sts	12	No. 8 Stop, Buffalo Rd	51
8th and Cherry Sts	13	Orchard St., Wesleyville	52
8th and Cascade Sts	14	Water St., Wesleyville	53
8th and Weschler Ave	15	12th and Parade Sts	54
8th and Reed's Shop	16	12th and Wayne Sts	55
8th and Railroad Switch	17	12th and East Ave	56
8th and Ferncliff Switch	18	12th and Payne Ave	57
8th and Tracy Switch	19	12th & Brickyard Switch	58
8th and Hermann Switch	20	New Barn (S. E. Gate	59
8th and Cemetery Switch	21	12th and Franklin Ave	60
8th and Cemetery Curve	22	8th and Franklin Ave	61
Wabbameet	23	8th and General Electric	62
12th and Peach Sts	24	6th and French Sts	63
14th and Peach Sts	25	6th and Parade Sts	64
12th and Cherry Sts	26	6th and Wayne Sts	65
12th and Erie Foundry	27	6th and Hammermill	66
12th and Brakeshoe	28	6th and Franklin Ave	67
18th and Peach Sts	29	6th & G. E. (G. E. Junc.)	68
18th and Myrtle Sts	30	General Electric Loop	69
18th and Walnut Sts	31	Four Mile Creek Junc.	70
18th and Poplar Sts	32	Four Mile Creek	71
18th and Cranberry Sts	33	E. Lake Rd. & Crowley Rd	72
26th and Peach Sts	34	East Gate G. E. Co	73
26th and Cherry Sts	35	Lawrence Pk. Wye	74
Weigeltown	36	Exposition Gds	75
Peach & Chestnut Crossover	37	New Barn (S. W. Gate)	76
End of South Peach St.	38	Pittsburgh Avenue	77
26th and German Sts	39	Elm Tree	78
		Westminster	79
		Six Mile Creek Jct	80

Form 30

ERIE RAILWAYS COMPANY

Date........................192....

Opr................No..........Line..................Run No..........

Motorman No...............

TRANSFERS ISSUED

Direction	Direction	Direction	Direction
Ending No.	No.	No.	No.
Com. No.	No.	No.	No.
Total	Total	Total	Total

1st	2nd	3rd
Fare Box No.	Fare Box No.	Fare Box No.
Cash Box No.	Cash Box No.	Cash Box No.

TIME		MILEAGE		TRANS.		TIME		MILEAGE		TRANS	
Start	In	From	To	Out	In	Start	In	From	To	Out	In
		otal						Total			

To be used by Auditing Department only

Trans.................Comp..................Emp..................All Others..........

Car No.............................(1st)

Meter Reading In..........................

" " Out..........................

Total..........................

Car No..........Time.....................(2nd)

Meter Reading In..........................

" " Out..........................

Total..........................

Car No..........Time.....................(3rd)

Meter Reading In..........................

" " Out..........................

Total..........................

Regular Time Slip

OUT		IN		TIME	
Hrs.	Min.	Hrs.	Min.	Hrs.	Min.

Total..........................

EXTRA TIME SLIP

OUT		IN		TIME	
Hrs.	Min.	Hrs.	Min.	Hrs.	Min.

Total..........................

O. K. Inspector..........................

Telephone Calls

Supt. Office 3rd and State { Bell 1956-J Mutual 22-801

12th St. Shop Office { Bell 1288-R Mutual 24-147

12th St. Starter's Office { Mutual 56-219

To Get Ambulance, Call Police Station Bell 2795 Mutual 22-281

(2nd) CASH BOX SLIP | (1st) CASH BOX SLIP

(2nd) CASH BOX SLIP	(1st) CASH BOX SLIP
Date..........192..	Date..........192..
Line	Line
Run	Run
Fare Box No.	Fare Box No.
Cash Box No.	Cash Box No.
Opr.	Opr.
No.	No.

(2nd) CAR REPORT	(1st) CAR REPORT
Date..........192..	Date..........192..
Opr.	Opr.
No.	No.
Run......Car......	Run......Car......
Remarks on back	Remarks on back

(2nd)	B.O.	(1st)	B.O.
Sand Box No.		Sand Box No.	
Sand Valve No.		Sand Valve No.	
Motorman's Doors		Motorman's Doors	
Conductor's Doors		Conductor's Doors	
Windows		Windows	
Seats		Seats	
Steps		Steps	
Grabhandles		Grabhandles	
Fender No.		Fender No.	
Gong No.		Gong No.	
Signal Bells		Signal Bells	
Signal Buzzers		Signal Buzzers	
Heaters		Heaters	
Trolleys No.		Trolleys No.	
Circuit Breaker No.		Circuit Breaker No.	
Fuses		Fuses	
Lamps		Lamps	
Headlights		Headlights	
Compressor		Compressor	
Governor		Governor	
Eng. Valve No.		Eng. Valve No.	
Trucks No.		Trucks No.	
Brakes		Brakes	
Brakes, Hand No.		Brakes, Hand No.	
Wheels No.		Wheels No.	
Motor No.		Motor No.	
Pinion No.		Pinion No.	
Axle Bearings No.		Axle Bearings No.	
Journal Bear'gs No.		Journal Bear'gs No.	
Controller No.		Controller No.	
Rheostats		Rheostats	
Trolley Catcher		Trolley Catcher	
Register		Register	

A Trip Sheet that Combines Seven Forms Previously Used by Car Operators of the Erie Railways. The Illustrations at the Top Are Printed on the Reverse Side of the Trip Sheet

In case trouble develops with the car, the operator fills out the "Car Report" at the right of the slip. He detaches it and turns the car in before the end of the run. In such an event, the meter reading for the new car is entered in the second space. From the time the change of cars was made the operating department can tell every car that was used on the run and the number of trips it made. This does away with the necessity of changing trip sheets every time the operator works on another car.

On completing the run, the operator makes the necessary closing entries and fills out the car report, which is left pinned to the trip sheet. It is seldom that three cars are used on a run of ten hours. If they should be, the operator detaches a cash box slip and car report card from an unused form and uses them in connection with the trip sheet.

The regular and extra time slips are self-explanatory. They are filled in by the operator at the beginning and ending of each department of his work.

The space at the bottom of the trip sheet is for the information of the auditing department, entries being made in the office. The transfers which are inclosed in trip envelopes are recorded here. At present complimentary tickets are not in use, and employee tickets are deposited in the cash box. However, spaces are provided so that in case the method is changed it will not be necessary to print new trip sheets.

A chart showing mileages from each point on the system, such as switches, crossovers and terminals, from which mileage can be figured, has been prepared. From this was worked out the mileage points shown on the back of the trip sheet. All that is necessary is for the operator to put the proper mileage points down in the spaces provided. The list on the back gives the information in convenient form.

SEVEN FORMS REPLACED

Before adopting the present trip sheet, the operators were provided with seven forms, as follows:

Trip sheet.
Record showing conductor or operator's name, working time and cash and ticket register readings.
Car report and economy meter readings.
Operator's time slip for regular time.
Time report for miscellaneous and extra time.
Fare box and cash box slip.
Table of mileage points.

In this list of forms there is considerable duplication. All of this has been eliminated on the new form. In addition the telephone numbers which the operator is likely to call, either in regular service or in emergencies, have been added to the form.

The new arrangement makes it unnecessary to burden the operators by carrying so many forms and with filling them out. It is found that operators do not overlook the information which is required on the one form. This saves dispute. In the accounting department, when the new form is sorted once, that is sufficient. This does away with the sorting of many different forms by different clerks. Moreover, when the new form is filed away, the entire record is complete, which does away with the necessity of many separate files. It is said that the cost of printing and the waste of forms has also been considerably reduced.

At present, the Erie Railways operates entirely with one-man cars. The operator on the early run takes out a locked cash box, which remains with him for his run, after which he turns it over to the late operator. Runs are operated in pairs, the early runs being numbered 1, 2, 3, etc., while the late runs are numbered 1a, 2a, 3a, etc. Transfers for the day are issued to the early run operator, who turns transfers not used over to his relief, or to the operator of the late run. The operator of the late run turns unused transfers into the office with his trip sheet. By issuing the transfers in this manner, it saves time for the late operator and also eliminates waste of transfers.

The new form of trip sheet was worked out under the supervision of A. F. Tideswell, treasurer of the company.

Examination Form for New Men at Los Angeles

TWO sets of questions, one for motormen and one for conductors, have been compiled for the use of division superintendents of the Los Angeles Railway, Los Angeles, Cal., in conducting an oral examination of trainmen at the end of their 90-day probation period. Thirty questions are presented on each form. It is expected that the examinations will be conducted in classes rather than individually, although this will depend upon the number of men being employed at different seasons of the year.

The questions refer to some of the features of every day work, all of which are covered in the instruction department training.

Copies of the questionnaires are being supplied to the supervisors and instructors. They will be asked to answer all the questions in writing before they are turned over to the division superintendents to use in the examination of trainmen. The object of the questionnaire is to uncover any deficiencies in a man's work before he comes under the merit and bonus system at the expiration of his period of probation. It is expected that the plan will be of considerable help to the new men and will effectively follow up the work of the instructors.

Car Cleaning Methods in Edinburgh

SOFT-HAIRED brushes and water are used to clean the cars of the Edinburgh Corporation Tramways, Edinburgh, Scotland, instead of using sponges and chamois skins. Side and end panels are washed only after inclement weather. This occurs on an average of about twice a week. On fair days the outside panels are carefully dusted and particular attention is given to cleaning the brass-work and windows.

Platforms running the whole length of the carhouse facilitate washing the top, sides and ends of cars. These platforms are equipped at regular intervals with water taps and hose, from which the workmen can refill their pails without descending to the floor level.

At each of the various depots a definite number of cars are kept out of service daily in order to be washed with soap. These cars are thoroughly cleansed with soap and hot water, both inside and out, and while they are out of service inspectors examine both the electrical and mechanical equipment of the cars, the woodwork is examined and repaired, and painters touch up scratches. Under this system of cleaning, the Edinburgh Tramways averages five cars washed per man per day.

Spanish Architecture Featured in New Coral Gables Car

Low Level Flush Floor Is a Feature—The Exterior Color Is Coral Trimmed with Blue—The Interior Is Brown and Buff—Brown and White Tiled Rubber Covers the Floor—Particular Attention Has Been Paid to Produce a Car that Will Attract Riders in This High-Class Community

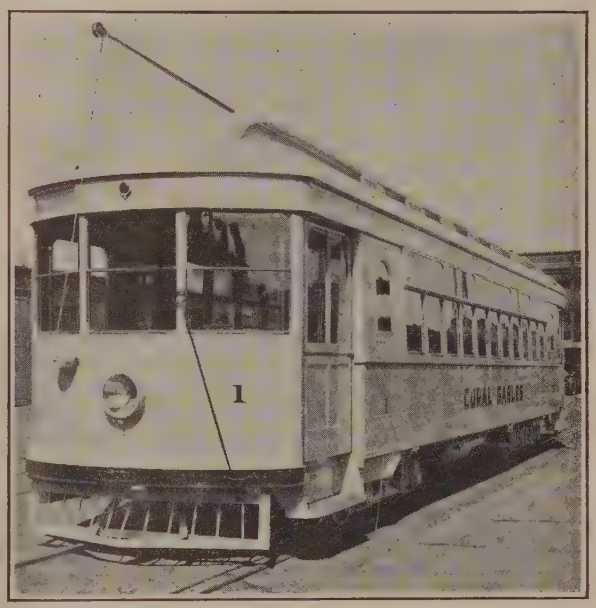
DOWN in Florida, where they are building cities and residential communities, and where they are generally beautifying what was but a few years ago considered a desolate land, intelligent foresight is being given to methods of transporting people from the more populated sections to the suburban sections. George Merrick, the builder of Coral Gables, realizes the immensity of his undertaking and is now preparing to handle transportation between the city of Miami and the several beautiful communities which he is developing. These will be connected by a rapid transit electric line, and his desire is that the equipment operating on this line should be of the highest class.

First, of course, operating conditions were considered; i.e., the schedule, speeds, etc., which have a great bearing on the design of the car. Secondly, the method of operation to handle the number of patrons carried; third, the class of patrons, and fourth, the general proportions of the cars were considered. Climatic conditions existing down in this semi-tropical country influence the details of car construction. This climate, which is claimed to prolong life, has its destructive elements that tend to destroy wood and steel, so in the design of this car due consideration was given to the proper use and treatment of materials to withstand as far as possible these unusual destructive elements.

After studying the operating conditions, a double-truck, double-end car of the following dimensions has been ordered from the J. G. Brill Company:

Length of body over corner posts	35 ft. 8 in.
Length of car over bumpers	47 ft. 8 in.
Length of each platform	5 ft. 6 in.
Length of cross seats	36 in.
Width of car—extreme	8 ft. 6 in.
Width of aisle	25 in.
Height from rail to top of trolley board	11 ft. 6 in.
Height from rail to step	15 in.
Height from step to platform floor	14½ in.
Wheelbase of trucks	5 ft. 4 in.
Diameter of wheels	26 in.
Seating capacity	52 passengers
Weight complete, approximately	38,000 lb.

The structure of the car, including the underframe, sides and vestibules, is principally rolled sections and sheet steel. The sheet steel is all of copper bearing

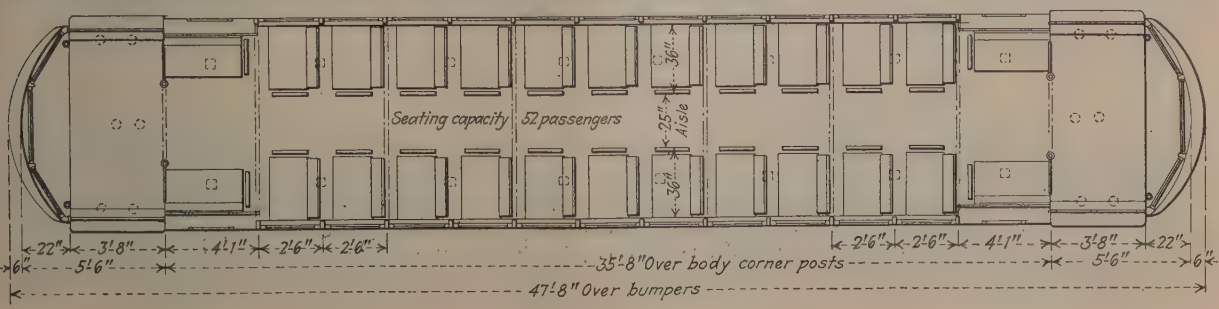


The Semi-Monitor Type Roof with Rounded Steam Coach Hoods Gives a Rapid Transit Effect

patent level quality, which was selected as being most practical where corrosion takes place very rapidly if the paint is scratched off and the metal exposed to the elements. The sides are straight and the posts are of a T-section.

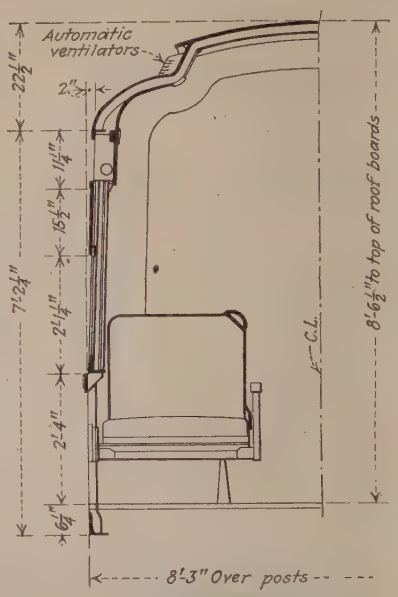
The wood used was carefully chosen. The floor is yellow pine, as is also the concealed furring to which the interior finish is fastened. The roof and the hoods are covered with cypress. All of this wood framing, including roof and floor, is treated with Saums' wood preservative. The exposed interior woodwork is mahogany.

The cars are arranged for double-end operation by either one man or two men. A single sliding door at each of the four corners is pneumatically operated



Cross-Seats with Dark Mahogany Arm Rests Are Used Except at Car Corners. Doors Slide Into Pockets in Car Body

through the motorman's air brake valve in conjunction with the National Pneumatic Company's door engines and other mechanism. In case of one-man operation the passengers enter and leave the doorway to the right of the operator, or if the operator should so desire, he can also open and close the right-hand rear door so as to allow passengers to leave through it. This will be done at terminals or where a street car is stationed.



The Upper Deck Has Special Windows—Sides Are Straight and Posts of T-Section

Under general operating conditions all passengers will enter and leave from the front, as it is considered advisable to use the rear door on a one-man car only in case of emergency or where a street man is present to assist in the loading and unloading. This arrangement is practicable for two-man operation. In this case the conductor, stationed on the rear platform, will have independent control of the rear door.

The step at each doorway is stationary, and a sliding door has been selected as being the simplest arrangement in so far as the number of parts and operating mechanism is concerned. Door engines are conveniently located under corner longitudinal seats, reducing the operating mechanism such as door shafts, levers and connections. There is no projection beyond the permanent structure of the car when the doors are open or closed, and no doors can be knocked off by careless vehicle drivers. In the case of collision there is no door mechanism to get out of order due to a crushed-in end.

The vestibule ends are of all-steel construction. Drop windows have been eliminated, particularly to do away with the objectionable pocket below the window sill to which the sash drop when the windows are open. Brass sash are used, so as to reduce the obstructions that confront the operators' vision. Each of the three windows in each end is divided into two parts; the lower half is stationary and the upper half drops to the window sill.

Side windows have continuous and stationary upper sash. The outside top corners of each adjacent pair of windows are rounded, extending over two lower windows. The lower side windows have brass sash that raise. These are held in place by Brill post casings of brass.

Change in Appearance Deemed Necessary

As this railway line is to give rapid transit, it was decided that the general appearance of the car should not resemble that of an ordinary city car, but should have the distinctive features of a rapid transit car. The design selected is a cross between an elevated or subway car and a steam railroad coach. For that reason the semi-monitor deck type of roof has been selected, with rounded steam coach hoods at each end. People will thus be able to distinguish this car as it approaches. The Perry type of louver or exhaust ventilator is used. The upper deck is of the arched type, and is arranged in such an effect that it will blend into the lower deck ceiling. This ceiling or headlining is of Agasote, broken at every other window by a beam rafter of mahogany.

The architecture of the new community of Coral Gables is Spanish and the relief work throughout on this car is in keeping with this architecture.

The floor is covered, including the platforms, with inlaid rubber. This is said to reduce noises ordinarily transmitted from rail up through the body. The step treads are covered with this rubber tile, on which are inlaid the words "in" and "out." The edges of steps have Gilliam safety threads.

Trap doors for motor inspection have been eliminated. While their omission may be objectionable to the maintenance department, it is believed that the advantages of no trap doors, with their unsightly appearance, offsets this mechanical maintenance inconvenience.

These cars are of the low-level type with the platform and car floors flush. The wheels are of 26 in. diameter.

Interior Embellishments Give Attractive Appearance, and Comfort of Passengers Is Made a Particular Feature

The seats are of Brill reversible type No. 201, with deep spring cushions and backs. They are covered with Spanish grain brown leather. On the aisle ends of all cross seats as well as the ends of the corner seats mahogany arm rests are provided. A motorman's portable seat, adjustable in height, is also provided. It has a back attachment, known as the Schechter type.

Curtains are provided at all side windows. A silk-faced gold-brown pattern of Pantasote has been selected, with Forsyth pinch handle fixtures. A curtain of similar material is also provided back of each motorman's position. This can be dropped at night to protect the motorman from the inside illumination. The upper windows are glazed with $\frac{1}{8}$-in. polished glass, and the balance with $\frac{1}{8}$-in. Libby-Owens glass. All of the brass trim, which includes windows and hardware and the inside faces of the spring brass post casings, is of brown statuary finish.

The interior color scheme is brown and buff. The mahogany used is of dark brown mission finish and brown leather is used on the seats. These, together with the brown and white floor tile and the buff ceilings, present an appearance which has a tinge of Spanish architecture of the Mission type.

Artistic Effect Sought in Lighting Scheme

Lighting was given special consideration to obtain an artistic effect. A lantern type of fixture is used, there being eighteen on the inside of the car. Besides these interior lamps, there are two lamps provided over each vestibule door and under the hood, as well as the sign lights, headlights and markers. The Golden Glow headlight has a special dimming resistance which operates independently of car lights.

The exterior painting scheme is what is known as Coral Gables standard. The body color is coral, the relief work being in red trimmed in blue. Bright colors predominate in this section of the country and the rolling stock will be in harmony with them. The roof and trucks are light brown.

The car is equipped with Keystone rotary gongs, Brill brake handles, Ohio Brass air sanders, Earll trolley retrievers, Keystone illuminated signs, bullseye tail lights and Faraday buzzers. Window guards and hand straps have been eliminated in an effort of the operating company to give the appearance of high-class service. The pipe stanchions and division rails are porcelain enameled Ellcon, colored mahogany in harmony with the interior finish.

These cars are mounted on the Brill 77-E-1 trucks, which embody all the Brill truck features, such as solid-forged side frames and Brill half-ball brake hangers. The bolsters are of cast steel and are fitted with the Brill half-ball type bolster guide. Brill air-operated slack adjusters automatically take up the slack due to brakeshoe wear.

The electrical equipment consists of four GE-265 motors with K-36-KK double-end control and DB-987 line breakers. The trolley bases are the Ohio Brass type No. 4. The air brakes are General Electric straight air with safety features and CP-27-B air compressors. The weight of this car complete is approximately 38,000 lb.

Comfort and safety of passengers, together with substantial construction to give long life and reduce maintenance, have been given first consideration in this design.

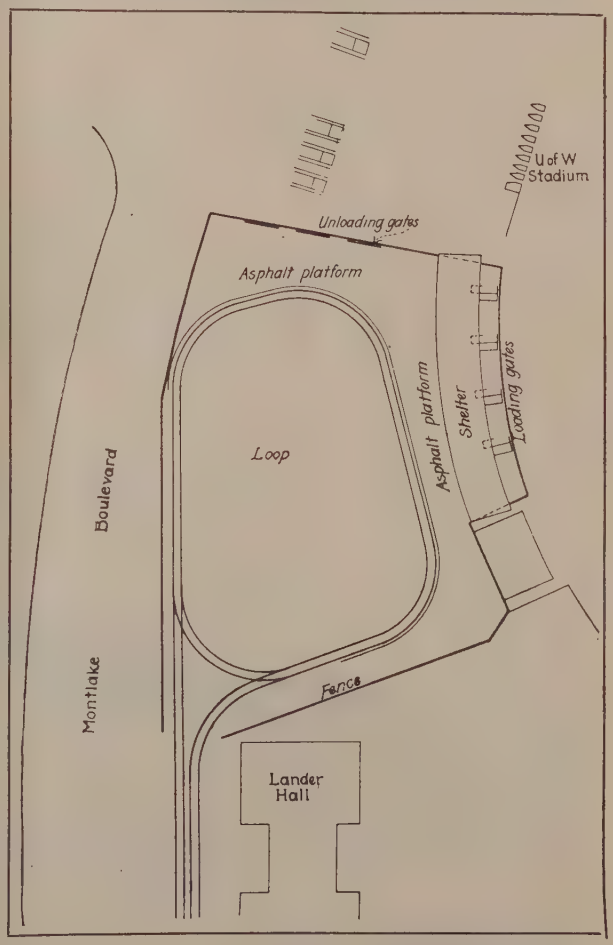
Seattle Municipal Railway Builds Stadium Loop Extension

Arrangements Made to Handle Large Crowds Attending Athletic Contests at the University of Washington—Electric Coin Boxes Used at Entrance Gate—Construction Cost $99,000

By A. E. Pierce

Superintendent Way and Structures Department, Municipal Railway, Seattle, Wash.

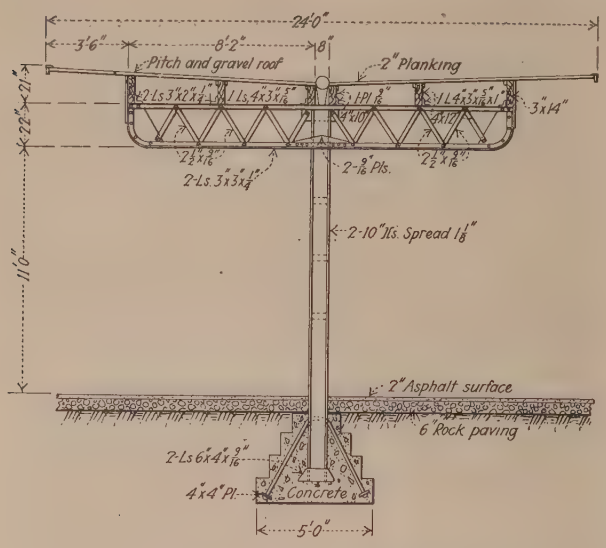
Construction of $\frac{3}{4}$ mile of double track and about 800 ft. of loop track was involved in the stadium loop extension of the Seattle Municipal Railway, completed last summer at a cost of $99,000. Approximately one-third of the double track is paved and the remainder is over a private right-of-way granted by the University of Washington. Connection is made at



Arrangement of Track, Loading and Unloading Platforms at the Stadium Loop of the Seattle Municipal Railway

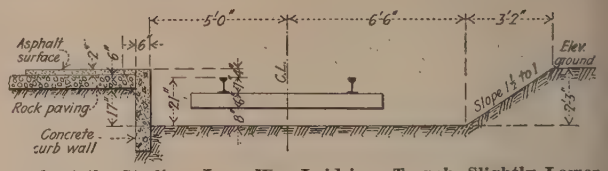
University Way and East 40th Street with an existing double-track line on University Way. Cars of the Eastlake, Wallingford, Phinney and Ballard Street lines from the north and the Montlake, Mount Baker and other downtown car lines from the south operate over the extension to a common terminal at the entrance of the stadium.

Inclosed loading and unloading platforms are pro-



A Shelter of This Type, 24 Ft. Wide and 120 Ft. Long, Affords Protection for Passengers During Inclement Weather

vided for people attending events at the stadium. The unloading platform is in the open, adjacent to the entrance gates to the stadium. An umbrella shelter, of the type shown in an accompanying drawing, 24 ft. wide and 120 ft. long, covers the loading platform. The loop itself is approximately 210 ft. long by 160 ft. wide. Alongside the platforms the rails are laid in a trench to reduce step heights. A high wire fence incloses the entire area. Three gates, 12 ft. wide, are provided for the use of alighting passengers. After the athletic contest has started these gates are closed. At the conclusion of the events people leaving the sta-



Track at the Stadium Loop Was Laid in a Trench, Slightly Lower than the Level of the Loading and Unloading Platforms

dium to take cars pass through five gates, each equipped with an electrically operated fare box. The general arrangement of loading and unloading platforms and the location of gates are shown on an accompanying map.

The sum of $99,000 was appropriated by the City Council for the construction of this extension and loop.

Ten special trackwork layouts were involved, costing about $25,000. Of these five were built by the Bethlehem Steel Company and five were built in the shops of the railway. A short single-track trestle was built, costing $1,740. Later this will be replaced by a double-track concrete and steel structure. The fence and gates were furnished by the Anchor Post Iron Works at a cost of about $2,500. The umbrella shelter cost $5,750.

Roller Bearings Tried on Eastern Massachusetts Street Railway

A DOUBLE-TRUCK light-weight one-man car of the Eastern Massachusetts Street Railway recently has been equipped with Hyatt roller bearings at the Chelsea shops of the company. In preliminary tests made over the Marblehead route a marked diminution in noise and vibration was noted. It is planned to continue operation over a considerable period of time, to determine the advantages and disadvantages of this type of journal bearing.

Loading Platform of the Seattle Municipal Railway at the New Stadium Loop Terminal Is Provided with an Umbrella Shelter. Electrically Operated Coin Boxes Are Used at the Gates

Typical Freight Train Hauled by 50-Ton Electric Locomotive on the Piedmont & Northern Railway

Freight Business Improves Interurban's Operating Ratio

On the Piedmont & Northern Railway This Type of Traffic Has Grown in Four Years from 55 per Cent to 74 per Cent of the Total—Electric Locomotives Haul Heavy Freight Trains and Occasional Excursion Trains — Multiple-Unit Cars Are Used in Regular Passenger Service—All Energy Is Purchased

DURING the past few years the Piedmont & Northern Railway, Charlotte, N. C., has concentrated on increasing its freight traffic. The perating ratio has been decreased from 80.3 per cent 1 1920 to 59 per cent in 1923. That this result is due a concentration in freight business is shown by the gures for the various years. Passenger earnings deeased from 36 per cent of the total income to 15 per ent, while the income derived from freight rose from 5 per cent to 74 per cent during the same period.

Some 200 miles of track, including 93 miles of main ne in South Carolina and 24 miles of main line in orth Carolina, comprises the system. The road does ot pass through any heavily populated cities. On the orthern division, Charlotte is the largest city touched y the line, having a population of 46,300. On the outhern division, which connects Spartanburg, Greenille and Greenwood, Greenille, with a population of 5,000, is the largest city. The system is chiefly single rack, winding through long tretches of tobacco and otton fields, over bridges, hrough cuts, up and down rade, and serving a somewhat sparsely settled, but rowing, textile producing ountry. It parallels the outhern Railway much of he way. Stations, or station stops, are located on an average of approximately 1 mile apart along the line.

Operation was begun in 1912, with the northern division known as the Piedmont Traction Company and the southern division called the Greenville, Spartanburg and Anderson Railway. Plans were laid to give all classes of rail transportation service, but, like many pioneer roads, it was designed primarily with the intent to provide passenger service for which there appeared to be a demand. It was the first railroad to employ the 1,500-volt d.c. system. Since its organization the railway has expanded in its connections and contacts with other railroads and industries and is now called the Piedmont & Northern Railway.

Track is of 80-lb. rail with both rails bonded and cross-bonded with No. 0000 B. & S. welded bonds. The route is practically all private right-of-way, allowing high-speed operation except over stretches of heavy curvature and up grades. Catenary construction is used throughout for the overhead, which is carried on bracket arms supported on wooden poles spaced 150 ft. on tangent track. The trolley wire is of No. 0000 B. & S. copper suspended from a $\frac{7}{16}$-in. steel messenger wire. The equivalent of two No. 0000 copper feeders extend over practically the whole line. This construction has provided a

Passenger Station at Belton, Typical of Such Structures on the P. & N. System

At Left, Regular Passenger Express Train Operating Between Spartanburg and Greenwood. At Right—Excursion Trains Use Electric Locomotives

high degree of reliability and permits operation of passenger trains at relatively high speed.

With the road located in territory served by the Southern Power Company's large system, the problem of energy supply has been simple from the beginning. Energy has been purchased from the Southern Power Company, through its own step-down power transformers at the various substations. Converting apparatus, switchboard equipment and buildings are owned and operated by the railway. This arrangement makes the railway purely a transportation agency, rather than a combined manufacturer of energy and an operator of transportation.

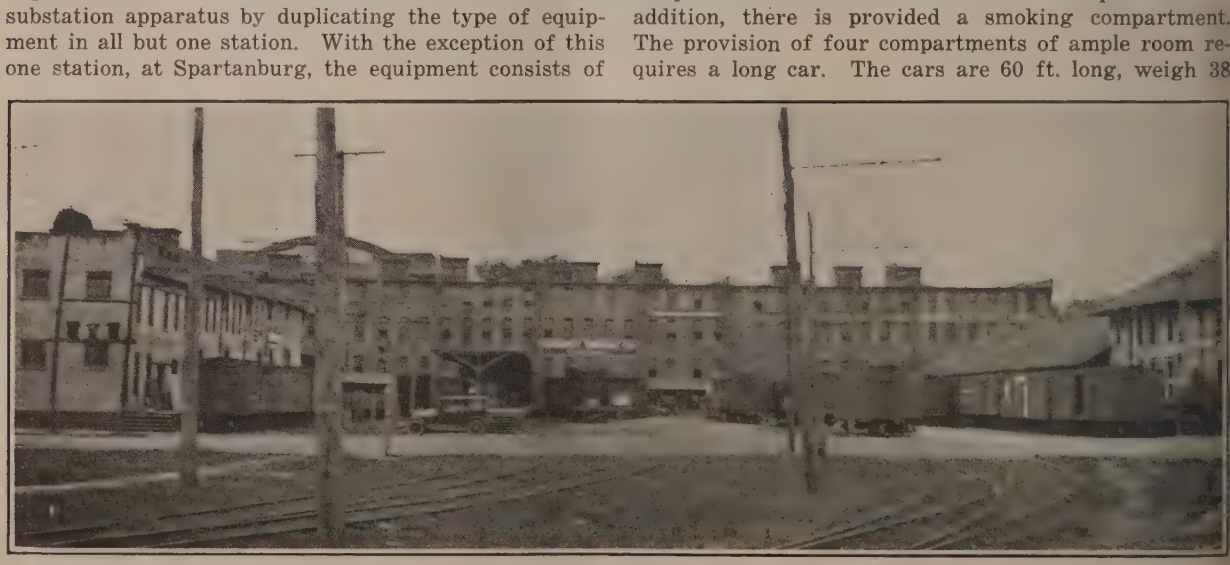
Three-phase power is furnished to six substations of the southern division and to two stations of the northern division at 2,200 volts, 60 cycles, except at Spartanburg, where the voltage is 8,400. This voltage is the substation motor terminal voltage. Thus, all transmission line losses are assumed by the company supplying power. At the Spartanburg converter substation the railway owns the transformers, which step the 8,400 volts down to rotary voltage.

In general, the substation buildings are of brick and are spacious, attractive and well arranged as to convenience and equipment. For the southern division five permanent and one portable substation, totaling 5,600 kw. installed capacity, are employed for converting the alternating-current power to 1,500 volts d.c. A high degree of standardization has been attained in the substation apparatus by duplicating the type of equipment in all but one station. With the exception of this one station, at Spartanburg, the equipment consists of one or two duplicate synchronous motor-generator sets of 500 kw. capacity. In all the motor-generator stations the switchboard equipment is similar, and all apparatus is protected by electrolytic lightning arresters. In the Spartanburg substation there are three 500-kw. rotary converters. On the northern division there are two motor-generator stations, with an installed capacity of 1,000 kw. each.

All switching equipment is of the manually operated type. However, under the direction of the train dispatcher, who is in direct touch with the traffic, one or more machines, or a complete substation, is taken off or put on the line as the load requirements demand. In this manner an endeavor is made to keep the no-load losses to a minimum. By operation of a portable 500-kw. substation it is possible to supply power to the most needed section according to the load requirements.

Motive Power Consists of Electric Locomotives and Multiple Unit Cars

Rolling stock consists of seventeen electric locomotives of various capacities, 30 passenger cars, 20 express cars, 350 freight cars, fifteen work cars, ten caboose cars and ten miscellaneous cars. The passenger cars are attractive and commodious. Bodies are finished in mahogany except for the baggage compartments, which are finished in ash. Due to the segregation of the colored people, it is necessary to provide separate compartments for the white and colored patrons. In addition, there is provided a smoking compartment. The provision of four compartments of ample room requires a long car. The cars are 60 ft. long, weigh 38



Piedmont & Northern Railway Terminal at Greenville

tons and seat 52 passengers. Equipment consists of the multiple-unit control and four Westinghouse 321 motors.

The intention of the builders of the system was to carry on, so far as possible, typical steam railroad service, including local and express passenger service and regular freight operation. While for years the passenger business predominated, and reached its peak during the war, it has gradually decreased in recent years due to the private automobile. Recently the chief effort has been to build up the freight business.

The success so far attained is the result of desirable physical connections with adjacent steam railroads and the location of many consuming and producing industrial plants on the line. Physical connections for the interchange of freight exist with the Blue Ridge road, the Carolina, Clinchfield & Ohio, the Charleston & Western Carolina, the Seaboard Air Line, the Southern Railway system and other smaller roads. To carry on such freight interchange, 200 additional box freight cars have been purchased recently.

Industries located along the right-of-way include chiefly cotton mills, which average about one to every mile of track, and power plants, which depend upon the P. & N. for ingoing and outgoing coal shipments. To provide this service the P. & N. has constructed and maintains sidings to the various plants, thus handling efficiently all freight to and from the door of the mills. Chutes have been built for the delivery of coal to the hoppers of power plants and mills. In addition, the connections made with foreign roads make the P. & N. the connecting link for the industries to all parts of the world. The various cities and towns also furnish a large volume of freight and express traffic.

For the present regular passenger service there are provided daily in each direction on the southern division three through passenger trains between Spartanburg and Greenwood, a 93-mile run. The running time between the two terminals is approximately 3½ hours, which requires a schedule speed of more than 26 miles an hour. One of these trains carries two passenger motor cars and a heavy express car. The two other trains are single motor cars only, except on Saturdays and Sundays, when two-car trains are operated. In addition to these trains, a daily single-car train is operated between Spartanburg, Belton and Anderson, a 70-mile trip, and a single car daily between Spartanburg and Greenville, a distance of 30 miles.

Over the northern division four trains are operated each way daily between Charlotte and Gastonia, all making connections at Belmont Junction near Belmont. On Saturdays and Sundays additional trains are operated between Charlotte and Gastonia.

In regular freight traffic a through express train is operated in each direction six days a week between Greenwood and Spartanburg. This train has an average tonnage between these points of about 1,200 and makes but one or two intermediate regular stops. Operated as an extra, but making a regular daily trip in each direction, is a local freight of 700 tons average weight. This train also goes to Anderson and does considerable pick-up service at the various mills. Other trains are operated as extras according to the demand. Almost daily a train of 400 or 500 tons makes a round trip between Greenville and Spartanburg. Both day and night movement of freight is employed in order to provide prompt service. On the southern division the annual ton mileage amounts to approximately 94,000,000 and on the northern division to about 14,100,000.

White Car Preaches Safety Lesson

SINCE March 13 a special "safety" car has been in operation every day on the lines of the Pittsburgh Railway. This car is painted white and carries a number of legends intended to bring to the attention of car riders, pedestrians and all others the necessity for safety first and all the time. It is operated in rotation on the various lines of the system so that every one will have a chance to see it. The colors, green and white, are those of the National Safety Council, at whose request the plan was undertaken.

Good Results in Safety Education Have Been Obtained by Operation of this Car in Pittsburgh

Large Demand for Commutation Books at Oklahoma City

SALE of commutation books on the interurban lines of the Oklahoma Railway, Oklahoma, Okla., will break all records this fall. A. E. Morris, general passenger agent, based this opinion on the number of inquiries he has received from students in Oklahoma City, El Reno, Guthrie, Edmond and other points served by the interurbans. Many of these students are planning to live at home while attending the University of Oklahoma, the Teachers' College in Edmond or the Oklahoma City University. The commutation books make it possible for the students to journey to their classes and return to their homes in the evening at a cost of only 1½ cents a mile. The most popular of the commutation books provides for 40 rides on the interurbans within a 30-day period. A second book has a 90-day limit with a fare of 2 cents a mile.

The Readers' Forum

The Record in Philadelphia

PHILADELPHIA RAPID TRANSIT COMPANY

PHILADELPHIA, PA., Sept. 21, 1925.

To the Editor:

The ELECTRIC RAILWAY JOURNAL is to be congratulated on the way in which it handled the "Mitten Management Testifies" article in the issue of Sept. 12. It is unfortunate, however, that the editorial in the same issue should have been published without a more complete understanding of the part Mitten Management has played in the developments to which you refer, notably the gas-electric motor bus, the power-recording meter, sand-handling methods and wage adjustment.

Mitten Management has received much from its study of other properties. We believe also that it has contributed much. What we have always endeavored to do is to seek out the best contributed by others and blend it with our own to get the best results. Repeatedly during the hearings before the commission we emphasized that much of our progress in P.R.T. was due to our adaptation of what has been originated elsewhere. Mr. Senter, in one of the paragraphs of his testimony which you did not quote, expresses this principle in the following language: "It is vital to the success of a street railway property that it keep abreast of every new engineering development in the science of transportation, and that its management strive to initiate every possible device looking to economy in operation and improvement in service."

Every result of Mitten Management's experience, in mechanical development, operating practice, industrial and public relations, and in every other phase of its activities, has always been and always will be available to any other management for the asking.

After all, the real measure of Mitten Management's contribution to the street railway industry is found in its record in Philadelphia, where it has produced peace and prosperity to public, employees and owners to a degree unequaled in any other large community.

J. M. SHAW,
Editor *Service Talks.*

KANSAS CITY RAILWAYS

KANSAS CITY, MO., Sept. 21, 1925.

To the Editor:

I think you and the JOURNAL should be commended for your editorial in the Sept. 12 number entitled, "An Opportunity Lost to Help the Industry." I think perhaps it expresses what a great many street railway fellows of the ordinary type, who are unable to lay claim to any super-accomplishment, have felt. Certainly no one would wish to detract from the many splendid achievements which have been accomplished and are being accomplished in Philadelphia. There is enough credit due for what has been done there. However, there may be some doubt if as much incense is deserved as seemingly is being burnt at this shrine.

What I had in mind, however, when I started to comment on this was the fact that sometimes innocently some of us are guilty of claiming to be the originators of operating methods or devices when in fact we are not. We may not have consciously copied anything, and as far as we are concerned the idea may be entirely new, but this does not get away from the fact that it might have been used elsewhere. For example, take the one-man car. I know that Bosenbury of the Illinois Traction System was experimenting with an extremely light-weight, one-man car, equipped with safety devices, in Wichita as far back as 1910, and that one-man cars were used in Kansas City further back than this.

It would not be a bad idea if the JOURNAL or the association or some central agency took upon itself the task of compiling a list of operating and mechanical innovations, establishing their first use, and settling any doubts that seem to exist.

F. G. BUFFE,
General Manager.

CORNELL UNIVERSITY

ITHACA, N. Y., Sept. 23, 1925.

To the Editor:

On page 405 of the issue of Sept. 12, R. H. Horton of the P.R.T. made a statement whose accuracy is to be doubted.

Mr. Horton says: "The frequency of cars . . . can best be measured by cars operating per mile of track. It is obvious that the more cars per mile of track the more often they will pass a given point." He then goes on to cite figures, disparaging to other cities and commendatory of Philadelphia.

On a line 5 miles long, 10 miles round trip, five cars operating at an average speed of 10 m.p.h. would maintain a twelve-minute headway, while if the speed were increased to 15 m.p.h. the headway would be reduced to eight minutes. In each case we would have one car per mile of track. In other words, speed is also a very important factor which Mr. Horton has omitted to mention.

It is also very misleading to give a figure as Mr. Horton has done for an entire city system. Conditions are different in different cities. In some there may be a larger proportion of lightly traveled suburban extensions, with long runs and infrequent headways, and in others a larger proportion of slow running through downtown streets heavily congested by vehicular traffic. This may be the reason for the larger number of cars per mile of track in Philadelphia. It seems to me that the management which could show the best headways with the least cars per mile of track would have an efficiency record to boast about. Furthermore, the only measure of the frequency of cars is headway.

FELIX E. REIFSCHNEIDER.

Overhaul Program at Los Angeles Nearing Completion

THE 125th car entered the shops of the Los Angeles Railway Corporation, Los Angeles, Cal., during the week ended Aug. 15, under the program to overhaul, paint and renew all the equipment used in two-car train operation. A total of 326 cars of types "H," "K" and "F" are involved in this job, which is now more than one-third finished. There are 250 "H" type cars to go through the shops. This is the type manufactured in the East and equipped for two-car train operation. The "K" type cars to be overhauled and painted number 60. They were made in the Los Angeles Railway shops and are similar in design to the type "H" equipment. Sixteen type "F" cars are to go in the shops. These are cars that have been rebuilt and fitted with longer bodies and cross-seats. The program has been under way for approximately one year. Eleven cars are put through the shops in an average month.

Association News & Discussions

Better Transportation Through Established Agencies*

Public Demands Local Transportation Furnished by Common Carriers—Neither the Private Automobile Nor the Bus Can Take the Place of the Electric Car—Congestion Has Forced Elimination of Many Buses in London—People Are Willing to Pay a Fair Rate for Good Service

BY L. S. STORRS
Managing Director American Electric Railway Association

CONSIDERATION of the future of local transportation furnished by common carriers raises three distinct questions: Does a majority of the public require and demand such service? If so, is this majority willing to pay a fare sufficient to return a profit that will attract investors? Are the managements of companies now operating electric railways able and willing to supply the kind of service required? "Yes," is the answer to these questions.

The question of whether there is a demand for transportation supplied by a public service company readily answers itself. It is obvious that people must travel, whether on business or pleasure bent. The fact is they are traveling about more than ever before. Furthermore, nationally a greater number of them than ever before in history are using public transportation.

The extent to which the public is using transportation supplied by companies operating electric railways is phenomenal. Last year the number was approximately 16,000,000,000 persons. This total represented three-fourths of all travel within cities. On this showing alone can any one seriously question whether a majority of the public demands service by such a public carrier? Obviously it is utterly impossible to do away with such service. Even though every person were financially able to use some other vehicle, enough street space could not be provided for them.

The cities of our country have grown to their pre-eminent greatness by reason of the excellence of the public transportation that has been provided. People are being attracted to them in ever-increasing numbers and there is more than ever an absolute need for this agency. Industries must have convenient and efficient transportation to maintain successful production. Merchants rely upon having the buying public brought to their doors. Residential districts are never developed on areas that are remote from this vital agency. As city streets become more and more congested with private means of travel there is an increasing need for this public service.

That this is an essential public service established for the benefit of the public, although developed by private initiative and conducted by private effort, has unfortunately seldom been appreciated. The communities and their transportation agents are co-partners. Disaster to one is disaster for both, and prosperity is equally mutual. No city can expand either in area or industrial importance unless this vital agent is solvent and prepared to take the lead in such expansion.

Almost 50,000,000 passengers now are riding the electric cars of the United States every day. Gentlemen who are predicting the passing of the electric car as a means of public transportation would confer a great favor on the public by explaining just how they would go about rendering as quick, economical and efficient service by some other vehicle. It would be even more interesting should they cite concrete evidence of such accomplishment.

It doesn't require the knowledge of a transportation expert to realize that private automobiles never can take the place of electric cars. There isn't space enough in our city streets to accommodate anywhere near the number of cars that would be required to carry 50,000,000 persons daily. Granting that every one could afford to travel to and from work or on pleasure trips in automobiles, such a thing would be physically impossible. If even one-half of our city population attempted to travel only by motor cars, the streets soon would be absolutely impassable.

Most optimists who dream of the age of rubber, of course, have not gone so far as to say that private automobiles would carry every one, but frequently they have asserted that the bus would very quickly supplant the electric car. This is a ridiculous statement, as I shall quickly prove to you by citing some actual experiments in this direction. Before I go into the point further, however, I want to make very clear the attitude of the electric railway industry in regard to the bus.

The industry believes that there is a very definite place in local transportation for the bus, but it doesn't believe that the bus is destined to take the place of all electric cars or any considerable percentage of them in urban travel. In any city the mass of the people travel within limited periods of time. In fact, fully one-half of all local riding is done in most cities during about four hours of the day. For this reason vehicular space is at a great premium during that time, and the vehicle which will carry the largest number of persons and make the best time is the one that will endure. The only vehicle created up to the present time which will do this satisfactorily is the electric car.

In supplemental service the bus is performing a very good work. More than 4,000 buses now are being operated by electric railway companies and many more of them will be operated in the future. It is a significant fact that although we have been hearing for a number of years that the bus was about to supplant the electric car, no city in the United States of over 50,000 population now is dependent solely on buses for local transportation service.

You are all familiar with attempts which have been made in such cities as Akron, Des Moines, Bridgeport, Toledo and elsewhere to motorize all local transportation, but I want to tell you briefly of the results of bus operation in London. I can speak authoritatively on this subject, because within the last two weeks I have talked with Sir Henry Maybury, director-general of roads in the Ministry of Transport and chairman of the London Traffic Committee, in regard to the London situation.

The bus has had every opportunity in London to supplant the electric car, if it were capable of so doing. It has been relieved of practically all tax obligations, until recently not required to maintain schedules and permitted to roam about wherever it pleased to pick up passengers. In fact, in a very large part of downtown London electric cars are not permitted to operate, and in this section buses had full sway. Despite these advantages, the best the bus was able to do in London up to the time that it so congested the streets that further additional bus movements were impossible was to carry something less than 40 per cent of the total traffic. Electric cars were found to be absolutely essential to local traffic movements. Furthermore, so great has become the congestion from the buses doing a 40 per cent service that approximately one-fourth of the buses now are about to be removed by the London Traffic Committee.

The second question, as to whether the public is willing to pay enough for transportation service to make it profitable to the investor, has been answered

*Abstract of a paper presented at Babson Park, Mass., Oct. 2.

many times in the last six years in hundreds of American communities. In a nutshell, the riding public is willing to pay a fare which will insure a profit to the local transportation company if it is satisfied with the service and convinced of the integrity and good intentions of the management. You cannot answer this question for all communities with a specific "yes" or "no" reply, but generally speaking, it is fair to say that the riders will pay a fair fare.

When the serious troubles of electric railway companies began, some eight years ago, the 5-cent fare was in effect very generally. Electric railway companies themselves were chiefly to blame for this situation. They had spent about 30 years popularizing this fare in the sincere but misguided belief that it would pay good profits to the end of time. When the greatly increased costs of operation of electric railways came along with the war, and simultaneously the private automobile began carrying millions of persons who ordinarily would have ridden electric cars, it was necessary to raise fares. Naturally, the riders, who had been educated to believe that 5 cents was enough for any ride, protested until such time as it was proved to their satisfaction that companies were entitled to higher fares. The serious work of convincing the public that transportation companies are entitled to a fair profit the same as other businesses has been going on now only about seven years, but in that period the 5-cent fare fetish has been generally dissipated. This has been done by showing the public the facts, and the public, which always is fair, has responded favorably.

Today the old 5-cent fare cry has lost its strength, as the recent experience of Mr. Hylan of New York has shown. The majority of the 16,000,000,000 annual users of electric car and bus services now provided by electric railway managements have no desire to crush the properties. They want them to go on because they know that such reliable transportation is necessary to their personal comfort. Quite naturally, they do not want the managements to make exorbitant profits, but they are willing that the companies earn a fair return.

Having considered the public demand for service and the willingness of the public to pay a fair wage to its public transportation service, let us look at the ability and willingness of present-day local transportation managements to render service.

During the last six months, particularly, I have been in contact with practically every electric railway property in the United States, and I assure you that a very large majority of them are striving earnestly to discharge their public duty. They conceive this duty to be to provide the most convenient, speediest and cheapest type of service and they are attempting to discharge it by modernizing their equipment both in respect to electric cars and buses and their methods of operation.

The private automobile has given the people such a convenient means of travel that the so-called "riding habit" of the cities has changed. In this transition period it is necessary for the transportation agent to make a scientific survey of each community in order to determine just what service is really required, and as a result of which the service must be built up by the use of such vehicles as will give the best results.

Progressive electric railways and those which are approaching most rapidly financial success are the ones which no longer consider themselves merely railway corporations, but the transportation agents of their communities, prepared to use to the fullest extent both rail cars and buses for the convenience of the public.

The art of urban transportation has up to the present been a gradual, slow development. With the advent of the original type of jitney began the development of the motor vehicle as a medium of transportation. Its progress, although more rapid than the change in the street car, has taken ten years to reach its present form, and marked improvements will be required before its actual place in the transportation fabric is determined.

The motor bus is a fixture and needed in practically every community for the complete development of the requirements of the people for travel. Its use must, however, be such that it will fit into the public requirements for a completely co-ordinated system of transportation serving all parts of the city.

Primarily, it must be under the same regulation as the other medium of public transportation and its use must fill in the apparent need for service. The existing transportation agent of the community should be the one to provide the service. Its experts are familiar with the requirements for service. They can make a much more efficient application of the motor units to the general needs. They are in a position to scrap older types of service and substitute this new one where efficiency and economy dictate.

No one is yet in a position to predict exactly where the motor will fit in. It is easy to point out unserved areas that warrant service. There are some cities where a few existing car lines will be abandoned and buses substituted. Many other types of service are being rendered by the electric railways, but the full development of its utility can come only through the actual ownership of buses; the need for increasing revenues and the desire on the part of transportation managements to provide a thoroughly co-ordinated service will be incentives to a maximum use of this new agent.

Fourteenth Safety Congress Held in Cleveland

Lack of Standardization Hampers Safety Work—Advantages and Disadvantages of the Bonus System Discussed at Electric Railway Section Meeting

MORE than 4,000 delegates from all parts of the world met in Cleveland during the week of Sept. 28 to Oct. 2 to discuss problems of safety as applied to all branches of industry. This fourteenth congress of the National Safety Council was opened by a city-wide demonstration which included the sounding of factory whistles and church bells. The presence of the congress in Cleveland was forcefully brought home to the citizens by the half-minute of silence, at which time all traffic halted in memory of the 20,000 killed by automobiles during the past year. It was to advance ideas to reduce the number of deaths due to accidents, which totaled 85,000 in 1924, that the congress was held. For the purpose of discussing specific problems, separate meetings were held for each industry or group of allied industries interested in the same conditions.

Rear Admiral William S. Sims, retired, United States Navy, speaking at the general session on Monday afternoon explained the difference between training and knowledge and why the Navy Department, unlike industrial organizations, had as its motto "Efficiency First" rather than "Safety First." By way of differentiating between training and knowledge he told of the repetition and practice required in the fundamentals of gunnery before a man is considered capable of operating a gun in the heat of battle. It is the aim of the navy to so train its men that the muscles respond automatically to the routine of gun firing. In the same manner, so he said, the motorists and operators of vehicles on the streets and highways should be trained if accidents are to be reduced. Knowledge of how a thing should be done will not in itself make the person competent to operate a machine, but continued training in the operation so that the muscles work independently of the brain will result in efficiency.

At the opening session of the congress on Monday morning, the delegates were welcomed by William R. Hopkins, City Manager of Cleveland. He called attention to the accident reduction record of the city and to the traffic regulations in the downtown district. C. B. Auel, president National Safety Council, responded to the address of welcome, outlining in his talk the work of the council during the past year. He deplored the lack of standardization in the matter of safety work throughout industry.

John Barton Payne, chairman central committee, American National Red Cross, addressed the congress on the humanization of safety work. He called attention to the fact that the American people were not a hard-hearted race given to cruelty, as the death toll due to accidents would seem to indicate. Following the Japan disaster the Red Cross was authorized by the President

of the United States to solicit $5,000,000. A total of $11,000,000 was poured into the fund by the people throughout the country. This and other examples of sympathy for the unfortunate place the American people above all other nations in this respect. Yet in spite of this, 20,000 were killed in a year in automobile accidents. Education of the children in safety work, followed up by continued application of accident prevention work, is the one means of eliminating the unnecessary fatalities.

How the automobile industry has progressed in eliminating the accident hazard from the pleasure car was outlined by Edward S. Jordan, president Jordan Motor Car Company. Application of four-wheel brakes, perfecting the steering mechanism and the installation of proper headlights were cited as outstanding developments in the automotive industry which have helped make the 17,000,000 cars now in service safer vehicles to operate. Two separate complexes exist in each of us, according to Mr. Jordan. When a pedestrian we think as pedestrians ignoring the rights of the motorist. As a motorist we forget about the times we are pedestrians. Such a condition necessarily leads to misunderstanding and ultimate accident. If the motorist would think more in terms of the pedestrian and practice greater courtesy in the operation of his automobile, particularly in the use of the safety devices with which it has been equipped by the manufacturer, the number of accidents would be materially reduced.

The executive session on Monday afternoon was presided over by Joseph H. Alexander, vice-president Cleveland Railway. Following Admiral Sims, Edward Dana, vice-president Boston Elevated Railway, read a paper on "Is Safety a Factor in Modern Industry," prepared by Howard Coonley, president Walworth Manufacturing Company, Boston, a co-worker of Mr. Dana's on the Boston Safety Council. Mr. Coonley's paper pointed out the need for continued application of the safety principle in business, answering affirmatively the question inferred in the title of his paper. That safety is a factor in all modern industry was shown by examples which cited the economic advantages to be derived from making safety a vital part of the industry's production process. Mr. Dana augmented the paper by a few remarks relative to the progress made by the local chapter of the council in Boston in furthering the cause of safety. He gave as examples a few of the applications made on the Boston Elevated.

Protection for the human machine comparable with that accorded a mechanical machine was asked by Capt. A. A. Nicholson of the Texas Company. In the treatment of mechanical machines the greatest care is exercised both by the owner and operator to insure long life and efficient operation. The locomotive engineer tenderly wipes off the engine at the end of the run. Before it is allowed to make another run it is cleaned, polished and inspected by roundhouse mechanics. Its useful life is thereby lengthened. What of the man whose hand makes possible the successful performance of this locomotive, Mr. Nicholson asked? What care is taken to insure longevity of life and efficient performance? With these two queries as a foundation he called on the convention to consider the treatment of employees in these matters of life and safety. Many, he said, considered very carefully the price of a machine, but thought nothing of the worth of a human life, because there are others waiting to replace the injured or dead employee. Before success can be attained in any industry account must be taken of the human element, the hand that guides and directs the man-made machines.

Walt S. Goodwin, Newark, N. J., Safety Council, illustrated by means of a chalk talk the various types of humanity employed in modern business.

What is being done in Europe to promote safety was explained by Dr. F. Ritzmann, representing the International Labor Office, League of Nations, Geneva, Switzerland. Several examples of co-operative work in the interest of safety were given.

COMING MEETINGS OF *Electric Railway and Allied Associations*

Oct. 5-9—American Electric Railway Association, annual convention and exhibits, Young's Million Dollar Pier, Atlantic City, N. J.

Oct. 7—Canadian electric railway delegates, get-together meeting, Marlborough-Blenheim Hotel, Atlantic City, 10:30 a.m.

Oct. 13-16—National Association of Railroad and Utilities Commissioners, Washington, D. C.

Oct. 21-23—American Welding Society, Boston, Mass.

Oct. 23-24—Kansas Public Service Association, Hotel Kansan, Topeka, Kan.

Jan. 28-29—Central Electric Railway Association, French Lick, Ind.

ELECTRIC RAILWAY SECTION WELL ATTENDED

Results obtained by 21 electric railway properties through the use of the bonus and award system of accident prevention were given by G. P. Hellmuth, claims attorney Chicago, North Shore & Milwaukee Railway. This was the first subject discussed at the opening session of the Electric Railway Section. Round-table discussion of this subject disclosed many interesting practices employed by electric railway companies throughout the country. D. L. Fennell, superintendent of transportation Kansas City Railway, asked about the increase in accidents during the winter months. If the increase is great, he asked what means the companies cited in Mr. Hellmuth's paper employed to combat this situation. Although no bonus system is employed in Kansas City, Mr. Fennell said that accidents had been reduced 15 per cent during the past year, due in a large degree to the appointment of new police commissioners.

H. K. Bennett, safety manager United Electric Railways, Providence, R. I., asked if figures were available on companies not having a bonus system, to which Mr. Hellmuth replied that he had not made such a compilation. Although not using a bonus system, Mr. Bennett said that he was in favor of it. With little or no cooperation from the men, his company had been able to make a reduction of 21 per cent in the number of accidents and a reduction of 26.7 per cent in the number of automobile accidents. All of this in one year was due entirely to selling the idea of safety to the individual man. Where conditions prevent propagation of safety work to the mass of men, this plan works very satisfactorily, according to Mr. Bennett.

The importance of keeping a close watch on the injury line as differentiated from total number of accidents was stressed by Victor Noonan, engineer accident prevention Chicago Surface Lines.

H. M. Reed, bureau of safety, pointed out the importance of safety work as a means of bringing the men in contact with officials of the company. The bonus and award system effects a better understanding between the men. Money is well spent in this educational work.

Standardization of accidents reports so that a better comparison may be made between accident statistics submitted by different companies was urged by E. K. Eastham, United Railways of St. Louis. He also said that he hoped the work of accident prevention would be increased to such an extent that organized labor would take it up as one of its most important problems.

G. A. Shaw, Northern Ohio Traction Company, explained the set-up of his safety organization, which does not give a bonus. He told of a system used whereby an individual record was kept of each operator. During seventeen months the records tell the exact nature of all accidents which have occurred. These records are checked periodically to ascertain the type of men responsible, and also to show who has the accidents. Of the 1,200 trainmen in the service of the company 36 did not sign an accident report in twelve months. On the other hand, 41 had signed 936 reports.

One-third of all accident claims settled by H. P. Smith, Springfield, Ohio, for his company is with employees. He inquired of Mr. Hellmuth if the figures given were segregated as to employee and patron accidents. "Bringing Safety to the Patron," or rather "Giving Safety to the Patron," was the subject of the paper read by S. R. Bowen, vice-president Washington Railway & Electric Company.

Election of officers resulted in the following selection: G. T. Hellmuth, chairman; R. W. Emmerson, vice-chairman; A. W. Kaylor, vice-chairman, and E. K. Eastham, secretary.

Victor Noonan, present chairman of the bulletin committee, called attention to the committee's work and cited the discouraging manner in which the companies had responded to his requests for photographs from which to make worth-while bulletins.

Results of the Bonus and Award Systems*

By G. T. HELLMUTH
Claims Attorney
Chicago, North Shore & Milwaukee Railroad

REDUCTION and minimizing of accidents through organized safety work has enlisted the full time and attention of specialists in that endeavor over a period of the past ten years, the last seven years of which have witnessed intensive cultivation of all the fields of this humanitarian activity. It is the general viewpoint that in order to be continuously successful, this kind of work must not grow stale. The work must not be done from year to year without variation in the way in which it is gone at; and this is true both from the standpoint of the effectiveness of the man responsible for the work, as well as from the pressing need of maintaining the unflagging interest of those individuals for whose direct benefit the work is being done.

A man doing safety work is a sort of missionary. He is a preacher of the creed of accident elimination—a man who saves others from suffering and privation and want. He must have frequent inspiration to encourage him in his task. Then, also, the employees or the public with whom he makes his contract, and among whom he is working, cannot be continuously appealed to along exactly the same lines; that is, they cannot be appealed to in that way and caused to respond with continued enthusiasm and interest.

There are at least thirty-one electric railways in the United States now using one kind or another of bonus plan. They are: Birmingham Electric Company, Butte Electric Railway, Charleston Interurban Railroad, Tennessee Electric Power Company, Monongahela West Penn Public Service Company, Dayton City Railway, Denver Tramway, Durham Public Service Company, El Paso Electric Company, Gary Street Railway, Wisconsin Public Service Corporation, Newport News & Hampton Railway, Hershey Transit Company, Los Angeles Railway, Memphis Street Railway, Menominee & Marinette Light & Traction Company, Northeast Oklahoma Railroad, the Milwaukee Electric Railway & Light Company, Wisconsin Gas & Electric Company, Nashville Railway & Light Company, West Penn Railways, Olean, Bradford & Salamanca Railway, West Penn Power Company, Arkansas Light & Power Company, Virginia Railway & Power Company, United Railways of St. Louis, San Diego Electric Railway, Washington Railway & Electric Company, Wisconsin Valley Electric Company, Wichita Falls Traction Company, and Youngstown Municipal Railway.

In addition to the companies named, there are a number of other carriers also using the plan, but that have not responded to requests for information and have not stated that they are at this time using the bonus.

There are only two reasons given for the attitude of those who do not believe in the bonus plan; first, it is said by some objectors that it is not right in principle to reward men for doing unusually well what they have been already paid to do. One may as well argue that one ought to always work in whatever endeavor one is engaged without any expectation of promotion or of increase in pay. Such a situation would deaden both initiative and mental activity. It would not be too broad a statement to say that to work with the definite knowledge that no sort of reward could be expected, either in promotion or in pay increase, would inevitably take from any individual the incentive for extra effort.

The second objection advanced to the use of the bonus plan is that train crews will be inclined to endeavor to keep their accident records clear by failing to report some of the accidents which they may have. This point can be met by the accumulated experience reported by those companies using the plan. In almost every instance not only has the number of unreported accidents not increased, but, on the contrary, it has decreased. This is very clearly shown by a study of the bonus system of the Nashville Railway & Light Company. The percentage of the gross expended by this company in 1922 was 5.80; in 1924, 3.40, and for the first six months of 1925, 3.20. It has resulted in almost 50 per cent reduction in accidents in 1924 and 1925 as compared to 1922, the year before the bonus went into effect.

Five of the companies reporting have had a bonus in effect since 1921 or earlier. Their percentages of expenditure of their gross receipts are as follows:

1920	6.49
1921	5.20
1922	3.91
1923	3.41
1924	3.31
1925*	2.66†

*One-half year only.
†A reduction of 50 per cent since 1921.

Seven other companies have had a bonus in effect beginning 1923 (one in 1922). Their averages in per cent are as follows:

1922	3.61
1923	3.74
1924	2.62
1925*	1.75†

*One-half year only.
†A reduction of 50 per cent since 1923.

Among the problems to be considered are those of competing bus and street car companies throughout the United States. Interstate operation of motor trucks and buses presents another subject which is to be discussed.

It is expected that railroad and public utility men generally will be present as visitors. Members of the Interstate Commerce Commission will attend and will participate in the proceedings. Officers of the American Electric Railway Association, National Electric Light Association, American Railway Association and American Gas Association will also be in attendance.

*Abstract of a paper presented at the Fourteenth Annual Safety Congress, Cleveland, Ohio, Sept. 28-Oct. 2.

Utility Commissioners to Meet in Washington

CONFRONTED with a broad program calling for regulation of rivalry between trolley cars and motor buses, restriction of competition between motor trucks and railroad trains and federal control of interstate electric light companies, public utilities commissioners from all 48 states will hold a meeting in the Mayflower Hotel at Washington, Oct. 13-17.

Judge William D. B. Ainey, chairman of Pennsylvania's Public Service Commission, as president of the National Association of Railroad and Utilities Commissioners, has called the conference. Its findings and recommendations will be presented to Congress as the basis for legislation next winter.

Special Trackwork

GROUND covered by the A. E. S. C. sectional commitee on specifications for materials used in the manufacture of special trackwork and design of 7-in. plain girder rails, at its ninth meeting held in New York on Sept. 16, included the approval of drawings of designs for three plain girder rails weighing 82, 92 and 102 lb. per yard respectively. These designs are the final result of the committee's consideration of this part of the work assigned to it for investigation. A few minor corrections were made to titles on drawings and in the designation of certain dimensions. The report of the sub-committee on this subject was also approved, with minor changes, subject to subsequent approval of splice bar design. Designs for splice bars which accompanied the sub-commitee report were referred back with instructions to follow out the recommendations of the committee as approved at its last meeting.

The commitee also considered at length the form in which the special trackwork specifications should be compiled, and also ways and means of completing the compilation of the remaining specifications and the final report in shape for submission to the sponsor. No decision was reached, but the matter was referred to a special committee to confer with the sectional committee chairman and the secretary of the A. E. R. A. as soon as possible after the October convention of the A. E. R. A.

American Association News

An Explanation

JAMES W. WELSH, executive secretary of the American Electric Railway Association, has asked ELECTRIC RAILWAY JOURNAL to print the following statement:

"The association regrets very much that its printers mailed the October number of *Aera* three days in advance of the date set for mailing. This resulted in a premature announcement of two addresses at the convention. As soon as the error was discovered the printers were notified of it, but all but 1,800 copies had been mailed. The association regrets this blunder."

Maintenance of Equipment

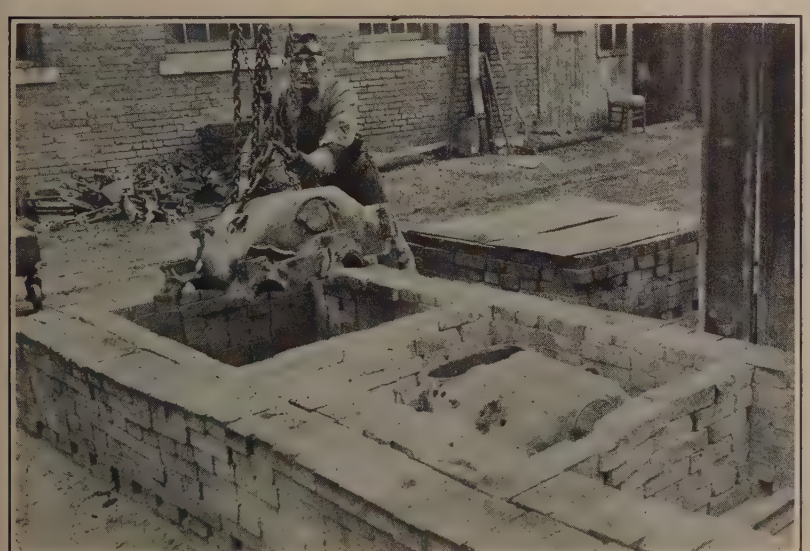
Annealing Motor Shells Prevents Breakage

BY F. C. LYNCH
Mechanical Engineer Kansas City Railways
Kansas City, Mo.

OLDER types of motor cases which have been giving trouble from breakage in service are being annealed by the Kansas City Railways. This work is done in ovens of loose fire brick built up in the yard. Charcoal is used for fuel. After the motor has been put in place and the fire started a sheet metal cover is placed over the top of the oven to keep out cold air during the annealing process.

Each oven is approximately 3½ ft. x 4 ft. and deep enough to take a split frame motor shell. The fuel charge consists of 100 lb. of charcoal. The fire is started with wood. After the charcoal has been ignited, the oven is covered and the fire is allowed to burn until the fuel is entirely exhausted. The oven then remains undisturbed until the case has cooled.

Experience had with this process shows that it relieves local strains in the motor shells, which were the cause of breaking in service. The condition of the material is so improved that a large part of the trouble has been eliminated.



Annealing Ovens in Kansas City Built Up of Loose Fire Brick Are Used for Relieving Local Strains in Old Motor Shells that Were Breaking in Service

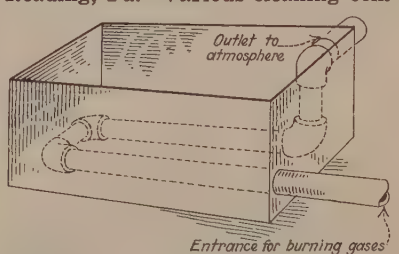
Rear Protection on the Rapid Transit Cars of the Boston Elevated Railway Is Now Furnished by Electric Tail Lights

Electric Tail Lamps Replace Oil Lamps

PROTECTION to the rear of rapid transit trains operated by the Boston Elevated Railway is now provided by two electric tail lights instead of the oil lamps formerly used. One electric lamp, that on the cab side of the car, is in series with the marker lamps on the roof. The lamp on the opposite side is in series with four lamps within the car. Holes were cut in the steel dashboard of the car and the electric lights installed as shown in the accompanying illustration. No element of danger is introduced on account of the possible failure of the electric lighting circuit because a following train would be stopped by an automatic trip before a collision could occur.

Crankcase Oil Burned to Heat Vat

METAL parts which have become covered with a coating of grease and dirt are cleaned by immersion in a vat of boiling liquid in the shops of the Reading Transit Company, Reading, Pa. Various cleaning compounds are used for this purpose, depending on the nature of the dirt to be removed. In all cases, however, it has been found advantageous to heat the liquid. This is done by burning old crankcase oil, obtained from the company's garage. A cast-iron pipe runs around three sides of the bottom of the cleaning vat, as shown in the accompanying illustration. Crankcase oil is mixed with compressed air and passes through a burner which opens into the pipe. The burning gases then pass through the pipe to an outlet to the atmosphere. The heat of combustion is



Arrangement by Which Crankcase Oil Is Used to Heat Cleaning Compounds

thus utilized to raise the temperature of the cleaning fluid. Compressed air is used also to agitate the liquid during the cleaning process.

Simple Jig Used for Drilling Bearings

FOR drilling dowel pin holes in armature bearings a simple jig which fits bearings from various types of motors is used in the reclamation shop of the Connecticut Company, New Haven. This jig consists of a flat base and several upright posts to hold the bearing in position. A number of the latter are fitted with a screw adjustment to accommodate bearings of different sizes. Across the top is a flat piece through which the drill passes. This is a detachable part and is changed according to the type of bearing to be drilled. It is clamped in place by the hook and handle shown in the accompanying illustration. By changing the top member this apparatus is suitable for drilling any one of a number of types of armature bearing.

The Top Member of This Jig Is Changeable to Suit the Type of Bearing to Be Drilled

Simple Wall Racks for Destination Signs

TO ENCOURAGE neatness about the carhouse and to save space the Union Street Railway, New Bedford, Mass., has constructed wall racks to hold destination signs. A large number of the cars are equipped with illuminated sign holders located on the ends of the vestibules just over the motorman's head. Signs are 51 in. x 4 in. and made of ¾-in. pine boards. On the ends of the signs are short horizontal iron pegs to hold the signs in place and permit them to revolve in the car frames in order to display either side. These pegs serve also to hold the signs in the wall racks. The wall racks are made of flat iron strips. Each rack is capable of holding six signs. The destination names are painted on the walls to designate the place for each route. The conductors on the cars pulling into the house are held responsible for the proper placing of the destination signs in the racks.

Detachable route number plates used on the cars of this company are held in wall racks by circular ¼-in. rods which extend out about 6 in. from the wall. Each plate has a small hole in the top, through which the projecting rod passes. Small holes are also bored in dasher signs so that they may be held in wall brackets by the same means. These small holes are inconspicuous when the signs are in use.

New Equipment Available

Smaller Buses Made by Yellow Coach Company

TWO IMPORTANT additions have recently been made to the products of the Yellow Coach Manufacturing Company, Chicago, Ill. These are designated as the "X" 21-passenger pay-enter coach and the "X" 17-21-passenger parlor coach. The type "X" pay-enter coach is designed for city service and short interurban runs. The type "X" parlor coach is built specially for intercity transportation. The same chassis is used for both coaches, with suitable rear axle ratio to meet operating conditions. The general dimensions are given in the accompanying table.

The type "X" 21 has eight double seats, four on each side and a cross seat at the rear seating five. These are upholstered in brown leather. Their arrangement permits all passengers to face forward. As there is no overhang to the body, the wheel housings come under the last cross-seat and do not interfere with the regular seating layout. The type "X" 17-21 parlor coach has four rows of de luxe type double wicker chairs on the left side and four rows of single chairs on the right, all facing forward. Seat-back cushions and arm rests are all upholstered in brown leather. A cross seat in the rear accommodates four passengers and there is a hinged observation seat alongside the driver. Emergency seats in the baggage compartment accommodate four additional passengers.

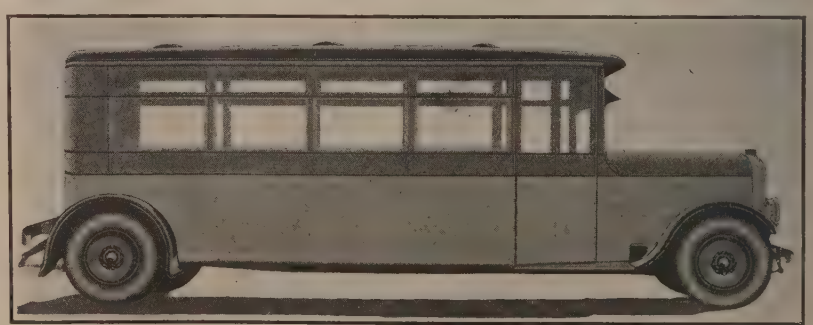
TYPE "X" 21-PASSENGER PAY-ENTER COACH

Over-all length of body	16 ft. 4½ in.
Over-all length of coach	22 ft. 1¼ in.
Over-all width of coach	90 in.
Over-all height (loaded)	8 ft. 3⅜ in.
Headroom inside body	6 ft. 2 in.
Floor height from ground (loaded)	23⅜ in.
Step height from ground	14 in.

TYPE "X" 17-PASSENGER PARLOR COACH

Over-all length of body	19 ft.
Over-all length of coach	24 ft. 6 in.
Over-all width of coach	83 in.
Over-all width over dual tires	82 in.
Over-all height (full load)	7 ft. 10 in.
Headroom inside body	66 in.
Headroom inside body in luggage compartment	57 in.
Floor height from ground (loaded)	23 5/16 in.
Step height from ground	14 in.

Grained mahogany is used in the interior finish of both coaches. The roof of the pay-enter model is white enamel, while the side panels, side post panels and roof headlining of the parlor coach are of matched grain mahogany rubbed to a satin finish. The windows in the "X" 21 pay-enter coach are the raised type, brass sash, with fixed upper



The Type "X" 17-21 Parlor Coach Has De Luxe Type Double Wicker Chairs on the Left and Single Chairs on the Right

transoms. The entrance door is the folding type and is operated from the driver's seat.

In the parlor coach drop-type plate glass windows are used. The rear window is stationary. The safety door of the pay-enter coach is located at the rear center of the body, while that of the parlor coach is at the left rear side. The latter also has a baggage door at the right rear side and a double-bar luggage rack on the roof.

Interiors of both the pay-enter and the parlor coach are illuminated by eight 21-cp. dome lights. Advertising space is furnished in the pay-enter type only and consists of an 11-in. wide mahogany finish sign rack above the transoms on both sides of the body. Exhaust gas with an adjustable control is used for heating. Three ventilators are located in the roof. Ventilators are also located in the cowls of both coaches. The destination sign is Hunter roller curtain type.

The type "X" chassis has a 210-in. wheelbase and the frame height from the ground is 20 in. The frame width in the rear is 48¾ in., in front, 29 in. This narrow frame construction in front, together with the sharp lock of the front wheel and wide front track of 66 in., permits a short turning radius of 29 ft. Both coaches are powered by the six-cylinder Yellow sleeve-valve engine, built by the Yellow Sleeve-Valve Engine Works, Inc., East Moline, Ill. This engine is known as Model "HX." It has a 3½-in. bore and 4½-in. stroke, developing a maximum of 60 hp. The engine is equipped with a North East electric generator, 12-volt system of 225-watt capacity. The starter is also North East electric geared head type with Bendix drive.

The steering gear is mounted on the frame and is the cam and lever type. The clutch and brake pedals, as well as the hydraulic master cylinder, are constructed as an integral unit and rigidly mounted on the frame. The clutch is the twin disk type and consists of two cast-iron disk and four friction fabric linings, mounted on steel plates, riveted in pairs. The driving disks are of cast iron, thus guaranteeing rapid heat dissipation. Transmission is four-speed selective type. There are two tubular propeller shafts with three metal universal joints.

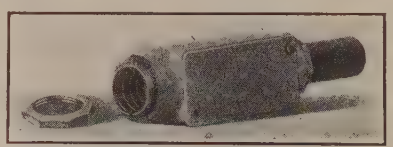
The frame is of pressed steel with kick-up over front and rear axles. Five tubular cross members hold the side bars in rigid alignment under the most severe strains. The springs are progressive type, the additional leaves coming into play as the load increases. Proper spring flexibility for various-size loads is thus assured.

A spiral bevel gear type rear axle is used. Bevel gear, pinion and differential are assembled in one unit, the housing being of heat-treated steel, hot pressed and welded into one piece. The semi-floating axle shafts are of heat-treated nickel steel of 2 15/16 in. diameter at the wheel bearings. Single wheels are used in front and duals rear. Wheels, both front and rear, take 32 x 6 tires. The chassis is equipped with two sets of brakes. Hydraulic service or foot brakes are on all four wheels and have external contracting brake bands. The emergency brake is the hand-lever, push-on type and has internal expanding brake bands on the rear wheels.

Development of these two coaches is an outgrowth of the demand for light-weight equipment of medium seating capacity.

Threadless Conduit Fitting

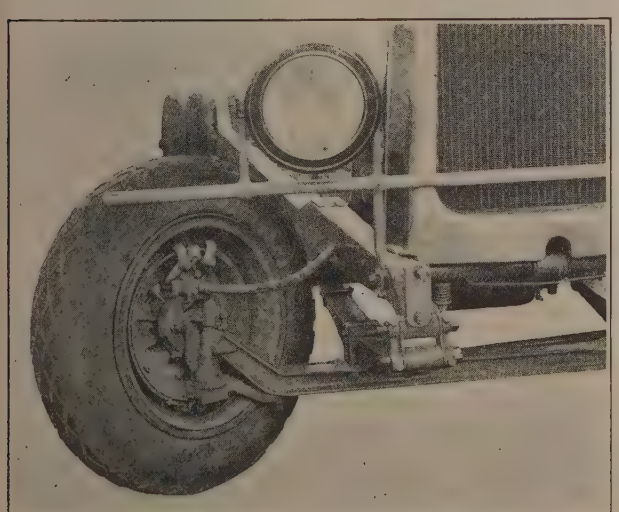
A NEW type of threadless conduit fitting, known as the "Kondu-Box," has been placed on the market by the Erie Malleable Iron Company, Erie, Pa. The "Kondu-Box" is made of malleable iron and a bushing and lock nut are used to hold the conduit in position. A ground is secured by means of ridges or ground rings on the interior of the bushing that are forced through the enamel on the conduit as the lock nut is tightened on the bushing, which is case-



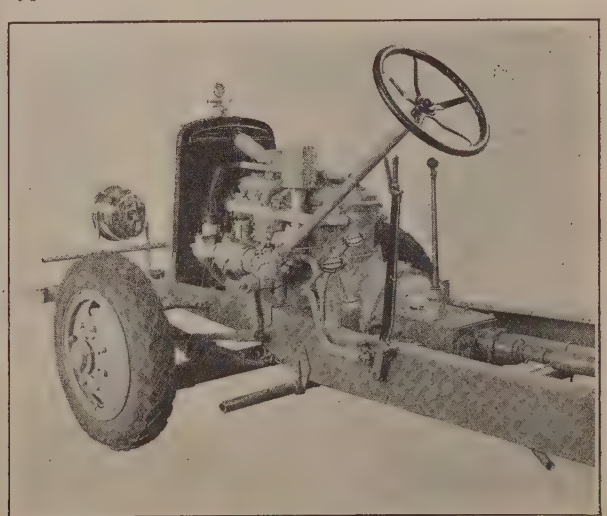
A Bushing and Lock Nut Hold the Conduit in Place With the New Fitting

hardened. The bushing is made with a machined bead, against which the conduit rests.

With the use of this new fitting the change of a fitting, after a line is installed, can be accomplished without removing the line of conduit. A light-wall tubing can also be used with this device as the cutting of threads is unnecessary. The company is also placing on the market a complete line of threadless couplings as well as adapters for use with standard steel knock-out boxes and an adapter bushing for use on flexible conductors.



Short Turning Radius Is Obtained by Narrow Frame Construction at the Front End



Model X Chassis Is Equipped with a 60-Hp., Six-Cylinder Sleeve Valve Engine

The News of the Industry

Wants to Keep Trolleys

New Haven Railroad Seeks Modification of Dissolution Decree—Modern Methods Dictate Co-ordination

The New York, New Haven & Hartford Railroad has filed a petition in the District Court for the Southern District of New York asking for a modification of the decree in the federal suit which in October, 1914, placed in the hands of trustees the Connecticut and Rhode Island electric railways and its investment in the stock of the Boston & Maine Railroad.

The decree also directed the sale of New Haven's interest in the stock of the New York and Western Massachusetts trolleys and of the notes of the New England Investment & Security Company.

The petition filed recites that by a modification in June, 1923, the stock of the Boston & Maine Railroad was returned to the Boston Railroad Holding Company, a Massachusetts corporation controlled by the New Haven; that the Rhode Island trolleys were sold under receivership in September, 1920; that in obedience to the decree, all of the stock and bonds of the Eastern Steamship Corporation have been sold.

As to the New York trolleys, the petition recites that the Westchester Street Railroad is now advertised for sale under receivership; that the Shore Line Electric Railroad has been abandoned and the operation thereof has ceased; that the New York & Stamford Railway ought to be retained to provide for the development of future suburban traffic into and out of New York City in connection with the New York, Westchester & Boston Railway.

As to the Western Massachusetts electric railways, the petition recites that roadway and structures of a book value of $4,300,000 have been abandoned because non-paying; that the New Haven is now engaged in rehabilitating the remaining parts, particularly Pittsfield, North Adams and Bennington properties, and that it ought not to be asked to put money into these properties for the purpose of rehabilitating them if it continues to be under obligation to sell them.

As to the New England Investment & Security Company notes, the petition recites that they are in default as to both principal and interest and have been in default since 1915; that steps are being taken to reorganize the finances of the New England Investment & Security Company and that the New Haven in order to obtain for its stockholders the greatest benefits from such reorganization ought to be in position where it is no longer required to sell these notes within a specified time.

The petition further states that the Connecticut Company is not and never has been one engaged in interstate commerce; that its business is not substantially competitive with that of the New Haven; that the Public Utilities Commission of Connecticut has recommended to the General Assembly that the property should be returned to the New Haven; that modern methods of transportation dictate the desirability of co-ordinating motor coaches, trolleys and steam railroad operation in order to give the service which the public requires; that to this end it is economical and desirable that the Connecticut Company and the New Haven should pool their resources and their methods of operation; that moreover the future financing of the Connecticut Company will require the help of the New Haven which cannot be expected if it is required to be sold and permanently taken from the steam road's control.

The petition states further that none of said securities could have been sold during the eleven years duration of the decree without a disastrous and unwarranted sacrifice of the interests of the New Haven stockholders. It quotes the opinion of Judge Mayer, who directed the return of the Boston & Maine stock in June, 1925, stating that:

> There recently has come a change because it seems that there must be co-operation, united effort and sensible companionship, all looking toward capable operation of the great railroad properties and the installing of methods and devices which shall make for economy.

It is expected that an early date will be set for a hearing, at which time testimony will be offered by the New Haven in support of the allegations.

South Shore Interurban Being Improved

More Than $500,000 Now Being Spent to Bring Indiana Road Up to Insull Standards—Every Part of System Being Modernized—Intensive Merchandising Campaign Under Way

REHABILITATION of the Chicago, South Shore & South Bend Railroad, South Bend, Ind., which two months ago came under the management of Samuel Insull and associates, is already well under way. In the progress of the work thus far, more than $260,000 has been spent for labor and materials, and it is expected that this amount will be more than doubled before cold weather forces a cessation of activities.

The rehabilitation work is being carried on in almost every branch of the railroad's operation. Perhaps the most important part of this work is the improvement of the track and roadbed. Thirteen gangs of men are now at work on this and between 400 and 500 men are engaged on the whole rehabilitation program. The most important features of the work now under way are:

Laying of heavier rail between Kensington and Hammond.

General improvement of the entire roadbed from Kensington to South Bend and replacing of old ties with new wherever needed.

Occupation of a new passenger station at South Bend and remodeling of other stations.

Enlargement of freight stations to take care of increasing business.

Installation of new electric overhead equipment between Kensington and Hammond.

Renovation and repainting of passenger cars.

The old 70 and 80-lb. steel rail between Kensington and Hammond will be replaced with 100-lb. rail to permit faster operation through this territory, where there is a minimum of highway crossings, with greater safety and comfort for passengers. More than 4 miles of double track of the heavier rail has already been laid from Kensington east.

More than 20,000 new creosoted ties have been used in replacing old ties all over the system where it was found necessary, and it is expected that this number will be doubled before the end of the working season this year.

The old rail is being strengthened with new angle bars, the plates which are bolted on at rail joints. This work has progressed from Michigan City to New Carlisle and from the end of the new rail to Michigan City.

Ten carloads of cinders a day are being used in resurfacing the right-of-way. The roadbed is being widened and new ditching on each side of the tracks, for better drainage, has been completed from the state line to New Carlisle.

A bridge over the Burns drainage ditch was installed in 21 days, which is considered a record for a 90-foot steel span. All steel structures and bridges are being cleaned and repainted.

All block signals on the railroad are being rewired wherever necessary, repainted and put in first class condition. Dispatchers' telephone service is being improved and renewed.

All highway crossings have been cleared of trees and underbrush which might tend to obscure the view of motorists. The entire right-of-way has been cleared of all weeds and other growth. All crossing warnings have been put in good shape and new signals installed at Virginia Street in Gary and at Baileytown.

Grading to make all sidings double-ended has been started. A new concrete bridge will be built over the Jacob Geyer ditch, 6 miles east of New Carlisle.

Work on the elevation of tracks at the Lincoln Highway crossing at New Carlisle will begin soon. This is the point where the highway will go under the South Shore Line, the New York Central and the Chicago, South Bend & Northern Indiana Railroads.

Architects are now at work on a standard design for the rebuilding of all shelters at local stops. This work will begin as soon as the plans are completed.

Material for the improvement of overhead electrical construction between Kensington and Hammond has been ordered and preparations are now being made for its installation. Steel truss work extending across the tracks will be used for the trolley wire suspension and the overhead will be of the catenary type, which is now in use by the line. The steel trusses will be bolted on to the present poles, which have been found to be in first class condition.

All cars are being renovated throughout and repainted. The new colors of these cars, a South Shore Line orange with mahogany trimming, have already attracted widespread attention, six of them already having been finished and placed in service.

Freight stations are being enlarged and also painted with the new color scheme. The freight station at Gary has been enlarged one-third in size to take care of this rapidly increasing branch of the company's business and additions to loading platforms are being built at other points.

Perhaps one of the most noticeable improvements in the rehabilitation program is the work being done on the passenger stations. At South Bend a new station has been opened at La Salle and Michigan Streets, which gives more adequate facilities for serving the public in that city.

This station has been painted and redecorated and new fixtures have been installed. A ladies' restroom with comfortable furnishings and a smoking room for men have been provided.

The station at Michigan City is also being remodeled and painted in a similar manner. Improvements in other passenger stations are planned.

Parking Rules Prove Helpful in St. Louis

Gratifying results have been obtained both in the reduction of street accidents and the speeding up of street railway, bus and vehicular traffic generally by the enforcement of St. Louis' downtown parking regulations, which became effective on June 23, last, according to statistics just made public by the St. Louis Safety Council.

The regulations prohibit the parking of private automobiles in the district east of Twelfth Street, north of Market, south of Franklin and west of Second Street during certain periods of the day. No parking is permitted between 7 and 10 a.m. and 4 and 6 p.m. and at other hours is limited.

E. K. Eastman, safety director for the United Railways, stated that accidents involving the car company had fallen off 33⅓ per cent in the districts benefiting from the non-parking regulations, while car movements between Twelfth and Fourth Streets had gained fifteen minutes per trip.

Traffic accidents involving the People's Motor Bus Company have fallen off 50 per cent in the zones affected, Richard W. Meade, president and general manager of the company, reported. The buses moving through the congested districts have been speeded up as a result of the clearing of the streets.

Wages and Fares Up in Boston

Arbitrators Announce Three-Cent Wage Award for Employees of Eastern Massachusetts Street Railway—General Fare Increase to Meet Situation—Single Ten-Cent Fare Unchanged

AN INCREASE of 3 cents an hour has been awarded employees of the Eastern Massachusetts Street Railway, Boston, Mass., by the special board of arbitration which has been considering the men's demands. The board has just issued its report, which proves to be a majority decision dissented from by the representative of the company.

This award raises the carmen from 63 to 66 cents an hour, which is the basic rate for one-man car operators. The new rate is made retroactive to May 1.

In consequence of this award the company gave notice, through Fred A. Cummings, vice-president, that it would be necessary for the trustees to raise fares immediately in practically every district on the system.

Company Arbitrator Dissents

The arbitration award was written by Judge Thomas J. Enright, who was the chairman of the board, and concurred in by James H. Vahey, who represented the men. Mr. Cummings, who represented the company, did not sign it. Chairman Enright concluded the report with the following argument and finding:

The only issue now remaining is the one raised in the first question, namely, shall the basic rates of wages now in effect be decreased, increased or remain as at present.

The basic rate at present is 58 cents an hour for men operating two-men cars and 63 cents an hour for men operating one-man cars. The association, in behalf of the men, asked for a substantial increase of their wages, claiming that they are not receiving as high a wage as is paid by other companies in neighboring cities, such as Manchester, N. H.; Fitchburgh, New Bedford, Providence, Springfield and Worcester, and introduced evidence to that effect. It is also contended that the financial condition of the company should not be considered by the arbitrators in fixing the pay. The company, on the other hand, contended that the present basic rate was higher than that paid in many other cities and that the financial condition of the company does not warrant any raise in pay at the present time and that the arbitrators should take that into consideration in deciding this issue.

I do not intend to recount here the story of the differences this company and its predecessors have had in the past with the men in regard to the wage question, all that was gone into very minutely at the hearings and the evidence relating to it and the different findings of the arbitration boards I have considered most carefully; neither do I intend to discuss or set out here the evidence presented regarding the general economic situation at the present time, the high cost of living or the present financial condition of the company, but will content myself with stating that in coming to the conclusion I have reached I have given due consideration to these matters.

In making my finding and award I have taken into consideration the contentions of the association and those of the company regarding the consideration that should be given by an arbitrator to the financial condition of the company in such matters and I am not in full accord with either. I do not agree with the contention of the association that the financial condition of the company should not be taken into consideration at all in making an award. I believe that whenever the employees are receiving a minimum fair living wage, such as will enable them to support their families and themselves, clothe and educate their children in a manner that an American family should be supported, clothed and educated, the company would then have the right to ask an arbitrator to find if that fact was clearly proved by the evidence that its financial condition did not warrant any increase in wages and that the arbitrator would be in justice required to find that no increase be given. I do not agree with the contention of the company that it is at this time paying its employees the minimum fair living wages to which they are entitled and that its present financial condition does not warrant any increase, and I therefore award an increase of 3 cents an hour over the present basic rate now received by them.

The wage of a motorman on the Eastern Massachusetts Street Railway has been raised in the past ten years from 28 cents to 66 cents, as shown by the following table of changes made by the company and by the state and federal wage boards:

	Cents an Hour
June 1, 1915....Increased from 28 to	30
Oct. 1, 1916	32
May 2, 1917	33
February, 1918	35
May 2, 1918	35½
June, 1918	40½
Oct. 22, 1918	45
June 19, 1919	51
1920	62
May 1, 1921	58
May 1, 1922	54½
May 2, 1923	58
May 1, 1925	61

As 95 per cent of the cars are now operated by one man, the new wage of the carmen, which is retroactive to last May, is really 66 cents an hour.

A general increase in carfares all over the Eastern Massachusetts Street Railway system, to meet the increase in wages, was announced by the management on Sept. 28 to go into effect on Oct. 1.

The single 10-cent fare has not been changed. Most of the increases are in the $1 tickets, fewer rides being given for $1. Among the increases are:

Chelsea Division—Ten for 50-cent ticket to be changed for eight for 50 cents.

Melrose-Woburn—Fourteen for $1, general zone ticket, with 70-cent rebate, to be changed to thirteen for $1, with 7-cent rebate.

Lynn Division—Ten for $1, general, to be changed to eight for $1.

Salem Division—Seventeen for $1, general, to be changed to sixteen for $1.

Lowell Division—Sixteen for $1, general, to be changed to fifteen for $1.

Lawrence Division — Seventeen for $1, central zone ticket, with 5-cent rebate, to be changed to sixteen for $1.

Haverhill Division—The 50-cent permit with 5 cents added for ride to be abolished and the thirteen for $1 Georgetown-Plains turnout or Lawrence route ticket with an 8-cent rebate to be changed to twelve for $1 ticket without rebate.

Norwood Division—No change.

Quincy Division—Sixteen for $1, general ticket, to be changed to fifteen for $1.

Weymouth Division — Thirteen for $1, general ticket, to be changed to twelve for $1.

Hingham Division—No change.

Brockton Division—Fifteen for $1, general ticket, with 50-cent rebate, to be changed to fourteen for $1 with 5-cent rebate; seventeen for $1, central zone ticket, to be changed to sixteen for $1.

Taunton Division—Fifteen for $1, general ticket, with 5-cent rebate, to be changed to fourteen for $1, without rebate.

Fall River Division — Twenty for $1 ticket, to be changed to nineteen for $1.

Fare Case Up in St. Paul

Review of Action Started by City in Which It Questions the State Regulative Measure

A. A. Stewart, corporation counsel at St. Paul, Minn., has filed in the Ramsey District Court a petition for an order restraining the St. Paul City Railway from collecting more than 6 cents fare. The case is to be heard on Oct. 3. This is an attack upon the Brooks-Coleman law passed in the 1921 Legislature placing the rate making in the hands of the Minnesota Railroad and Warehouse Commission. This commission after several hearings ordered a fare of 8 cents cash or 10 tokens for 60 cents effective on Aug. 1. The new rates have been in effect since that date.

The petition alleged that the act confers legislative power upon the courts contrary to the state constitution, and that it extends special privileges upon certain classes of citizens in that the benefits of the act are limited to Minnesota corporations, excluding private individuals, partnerships and foreign corporations.

If this motion is sustained the city holds that the company will have to operate under the old franchise or contract which provided that no more than a 6-cent fare should be charged for carrying passengers without consent of the City Council. Thus the company would have no recourse to the federal court as the fare is provided by contract.

This move followed a failure to come to agreement with company officials as to a compromise at a conference in the office of John Junell, counsel for the Twin City Rapid Transit Company, in the absence of Judge David F. Simpson recovering from injuries received in an automobile accident.

The theory was that the city would accept the Railroad Commission's valuation of $16,196,000. This figure the city regarded as too high and the company believes is too low. However, the company prefers to leave the matter in the federal court and could not accept such a compromise unless Minneapolis joined, which it has made no move to do.

T. Julian McGill, vice-president of the company, said:

> Any agreement or proposal made outside of court is illegal and not binding, and the matter would finally have to be threshed out in court.

Meanwhile there is pending in the Ramsey court an appeal from the commission's findings in the St. Paul City Railway case, as permitted by the Brooks-Coleman act. Also a federal master in chancery is preparing to hold hearings to determine a proper rate of fare as a result of the Minneapolis Street Railway and the St. Paul City Railway taking the rate case into the federal court, which assumed jurisdiction. Under the order of the commission the present rate is to be tested for six months from July 31.

In the commission's original order it suggested that St. Paul be less exacting with the company in the matter of paving and tax levies so as to reduce the operating and maintenance costs. The ratio of operating expense is higher in St. Paul than Minneapolis, which might result in a higher rate of fare in St. Paul. In St. Paul the paving requirement is more onerous than in Minneapolis and street cleaning and snow removal demands are more rigorous. No concessions are in effect as yet.

The situation is complicated in that the city of Duluth, Minn., on the same day filed a suit somewhat similar for injunction against the street railway act, with hearing set for Sept. 26.

No Rerouting in Washington Now

The Public Utilities Commission of the District of Columbia will not attempt to determine whether the transportation survey just completed shows the desirability of rerouting of any of the car lines until it is definitely learned whether there is to be a merger of the systems.

Officials of the commission have stated that they have not made sufficient study of the findings of the transportation engineers to tell whether the fares collected show the desirability of changing the routes.

Major W. E. R. Covell, assistant to the commission, pointed out, however, that even if the commission knew at this time that some adjustment in routes would improve service it would be unwise to make them before the question of merger is settled.

The question of rerouting, Major Covell said, is one that should be taken up as a secondary matter after there are some indications as to whether or not the survey is to result in a consolidation.

It was made clear, however, that if after several months have elapsed there are no apparent indications that the survey is leading to a merger, the findings of the engineers will then be carefully studied by the commission with a view to deciding how service could be improved by rerouting.

Among the numerous facts collected by the engineers were charts showing the amount of travel at various hours of the day on each line, and also the number of persons transferring at all points where two lines intersect.

Increase in Fares on Oneida Suburban Lines

The Oneida line of the New York State Railways has filed a tariff with the Public Service Commission, with an effective date of Oct. 16, proposing increases in certain fares. The new tariff proposes no change in the fares in the Utica, Syracuse and Oneida city districts nor is any change proposed in the rates and fares which were adjusted by order of the commission on Feb. 7, 1923. For all other one-way fares and round-trip fares an increase of 20 per cent is proposed, and on 50-trip commutation tickets and chartered car rates an increase of 15 per cent in fares and rates is proposed.

Georgia Court Upholds Right of Utility to Discontinue

In a decision handed down recently, the Georgia Court of Appeals ruled that a public utility had the right to discontinue service at any time when such a utility failed to earn a fair income. The case was Morris vs. the Atlanta Northern Railway, an electric interurban running a distance of 20 miles from Atlanta to Marietta. Several months ago bus competition became so injurious to the railway's interests that the Atlanta Northern dismantled a part of its tracks and put the cars in the carhouse.

Judge Newt A. Morris, a citizen of Marietta, filed suit asking that the company's franchise be ordered forfeited or the service renewed. The Superior Court refused the prayer of Judge Morris, who immediately appealed the case to the highest court in the state. While the case was pending before the highest court, city officials of Marietta outlawed the buses from their city and entered into an agreement to grant the interurban an increase. After this was done, the track was put back in condition and service restored.

In handing down the decision the judges stated that it would be decidedly unfair to compel a public utility or a private corporation to operate at a loss regardless of how necessary the utility's services might be. The difficulties of the Atlanta Marietta line have been referred to previously.

Ten-Cent Cash Fare Asked in East St. Louis

Announcement is made that the Illinois Commerce Commission will hold a rate hearing for the East St. Louis Railway in East St. Louis on Oct. 6, to consider the company's application for permission to raise its fares.

The present fare in East St. Louis is 8 cents, or two tokens for 15 cents. Some time ago the company asked permission to make cash fares 10 cents and to sell four tokens for 30 cents. Later it filed a second petition naming 10 cents as the price of a single fare, with five tokens for 40 cents as the "purchase in quantity" price.

Baltimore Survey Started

Rerouting of lines operated by the United Railways, Baltimore, and the question of solving the downtown parking problem probably will be the two subjects to be considered first in a traffic survey of Baltimore. The actual field work on the survey started on Sept. 16, when R. F. Kelker, Jr., and Charles F. DeLeuw, of Kelker, DeLeuw & Company, Chicago, with numerous assistants, went to Baltimore. Under the present plan the results of each phase of the survey will be announced as it is completed and public hearings then will be held. Clarence W. Miles, people's counsel, is chairman of the Traffic Survey Commission. Mr. Miles made the traffic survey suggestion at the United Railways valuation hearing, held recently by the Maryland Public Service Commission.

Desirability of Fare Advance at Dallas Being Urged

There has been little change in the fare situation at Dallas, Tex., since the publication of the item in the ELECTRIC RAILWAY JOURNAL for Aug. 29, page 334, indicating the desirability of permitting the Dallas Railway to increase its fare from 6 cents to 7 cents. A series of advertisements has been appearing in Dallas newspapers in which various aspects of the railway situation have been explained to the public. Employees are urged to keep up with these advertisements, copies of which are placed on bulletin boards, so that they may be able to answer correctly any questions that are asked by passengers or friends.

Under the present fare arrangement the company has been unable to keep up with extensions and to provide new equipment. The company is basing its position on the fact that Dallas is entitled to a better type of service than it is able to provide under present conditions.

Figures on the growth of Dallas indicate that it practically doubles its population each ten years. Growth during the past two years has even exceeded this ratio. Many of the new additions are beyond existing car lines and requests for service extensions precipitated the present discussion.

The company has estimated that a 7-cent fare would bring $500,000 additional revenue each year. This increase would permit the company to establish its credit and add to its equipment and mileage.

News Notes

$100,000 Subscription of P. R. T. to Exposition Completed. — Thomas E. Mitten of the Philadelphia Rapid Transit Company, Philadelphia, Pa., recently handed the Sesquicentennial Exposition officials a $90,000 check on behalf of his company. This was the first large subscription payment for participation certificates in the forthcoming $3,000,000 campaign. The amount which has just been paid completed the company's pledge of $100,000.

Booklet Tells Services Rendered.— The British Columbia Electric Railway, Vancouver, B. C., has issued a souvenir folder containing attractive views of the city of Vancouver. The folder also contains some interesting statistics on the company's city and interurban transportation service.

One-Man Cars for Economy.—The Wisconsin Railroad Commission has agreed, after reviewing the operating figures, to permit the introduction of one-man car service on the north side and Sixteenth Street trolley lines of the Wisconsin Railway, Light & Power Company in LaCrosse, Wis. The present fare of 7 cents for adults and 5 cents for children between the ages of five and twelve will be continued. The company was allowed to drop the monthly fare book and 5-cent fare schedule for children more than twelve years of age. For some time the company had been faced with the alternative of meeting rising costs by increasing the fare or operating one-man cars.

Will Honor Outstanding Tickets.— The Omaha & Council Bluffs Street Railway, Omaha, Neb., will honor all reduced children's tickets that are outstanding. It will not be necessary for students to present any certificate of enrollment, the only requirement being that the tickets be used during the prescribed hours, 6:45 a.m. to 5:15 p.m. on schooldays. Hereafter these tickets will not be sold, as the reduced rate for school children is no longer in effect.

Fare Argument on Nov. 17.—Argument in the fare case of the Philadelphia Rapid Transit Company, Philadelphia, Pa., was fixed by the commission for Nov. 17 in Harrisburg. The commission ordered that briefs be filed by the company not later than Oct. 30 and by the parties protesting against the present fare rate by Nov. 9.

Fare Increase Sought.—The Illinois Power Company has asked the Illinois Commerce Commission for an increase in car and bus fare rates in Springfield, Ill. A D. Mackie, vice-president and general manager of the company, said the new tariffs would be effective on Oct. 19 if approved. Cash fares on the street car and bus lines are to be continued at 10 cents, but tokens are to be sold at three for a quarter instead of four; family tickets are to be cut from 40 to 35 for $2 and school children's fares for passengers between six and sixteen years, 25 tickets for $1, good from 7 a.m. to 5 p.m. It is estimated 1,000,000 fewer passengers will be carried this year than were handled last year.

Fare Increase Awaited.—Des Moines, Iowa, faces the prospect of an immediate increase in fares to 10 cents when Frank C. Chambers, president and general manager of the Des Moines City Railway, announced that the stabilizing fund by an August deficit of $23,288 had gone $64,074 into the "red" and added that the traction line was preparing a five-day notice to the City Council which would be necessary before the new fares could be made effective. The strike in July, which sent the deficit down $25,000, and the inability to institute one-man car operation the first of the year were blamed for the constant decrease. The one-man car would have saved the company $185,000, Mr. Chambers said. In August revenue passengers totaled 1,983,756, a drop of 2,000,000 over the monthly average for a period of years.

Round-Trip Fares Reduced.—A reduced rate of 2 cents a mile on the round-trip fares has been put into effect on the Richmond division of the Terre Haute, Indianapolis & Eastern Traction Company. The previous rate of 3 cents a mile will continue on single-trip tickets. The reduced rate is to be effective as an experiment for 30 days, officials of the company say.

Fare Increase Sought. — Declaring that its revenues are insufficient to meet operating expenses and pay a return on its investment, the Wisconsin Rapids Street Railroad has applied to the Railroad Commission for permission to increase its fare in the city from 5 to 7 cents, and from 15 to 20 cents between Wisconsin Rapids and Nekoosa, Wis., and 10 cents instead of 5 cents between Port Edwards and Nekoosa. Abolishment of both the quantity ride tickets at reduced prices and coupon privileges for school children are also asked.

Higher Fares Authorized. — The Michigan Public Utilities Commission recently issued an order authorizing the Escanaba Power & Traction Company to charge a cash fare of 10 cents or sell tickets four for 25 cents in Escanaba, effective Oct. 1. The company asked for a cash fare of 10 cents and three tickets for 25 cents. The commission's order stated that it was evident the company could not operate under present rates, because revenues would not meet operating expenses. If a fair trial should show that not enough revenue was derived from the new rates, the commission would consider a modification. The commission referred to the difficulties experienced because of the private and public automobiles.

New Franchise Granted.—The City Council of Findlay, Ohio, will give a new 25-year franchise to the Toledo, Fostoria & Findlay Railway. Under the grant the company is to remove its East Sandusky street spur as soon as city and company can agree upon a location which will not interfere with traffic as the present spur does.

One-Man Cars on Unprofitable Lines. —The Wilmington & Philadelphia Traction Company, Wilmington, Del., has started the operation of one-man safety cars on the Edge Moor and Front Street lines. According to an official of the company the earnings on these two lines have failed for a great many years to meet operating expenses. The change is made in an effort to reduce the deficit on these lines.

Hearing Held on Increased Rates.— Hearing on a petition by the Atlanta Northern Railway asking increases in express rates between Atlanta and Marietta and intermediate points averaging 43 per cent was held on Sept. 23 before the Public Service Commission of Georgia. The contention that was advanced by the Atlanta Northern Railway, operating between Atlanta and Marietta, was that money was being lost in handling express and that automobile trucks were providing serious competition in hauling this class of goods. The proceeds of the Atlanta Northern for the first eight months of 1924, the petition stated, were $14,079, while the gross proceeds for the same period in 1925 have been only $9,859, showing a shrinkage of $5,020. For the first five months of 1925, the petition also alleged, the company took in only $6,002, while the operating expenses were $6,959, leaving a loss of $954.

P. R. T. Will Oppose Power Plan.— On behalf of the Philadelphia Electric Company, briefs were filed with the Public Service Commission of Pennsylvania in the Conowingo Power case. Argument will take place at Harrisburg on Oct. 5. The Philadelphia Rapid Transit Company, which is opposing the plan of the Philadelphia Electric for building a power plant on the Susquehanna, will also file briefs and appear for argument.

Recent Bus Developments

No Decision at Columbia

Use of Bus There Remains to Be Decided—Railway States Its Attitude —Committees Consider the Matter

Transportation in Columbia, the capital of South Carolina, has continued to be a vexing problem since F. K. Woodring, general manager of the Columbia Railway, Gas & Electric Company, announced at a meeting of the City Council that it was merely a question of time before electric railway transportation would have to be abandoned because of lack of patronage.

Close on the heels of Mr. Woodring's statement came the announcement that the Carolina Transit Company had been organized to make a proposition to the railway to take over the operation of the street cars until it could arrange to start a bus system.

Committees were appointed to look into the matter and one of these has reported to the directors of the Chamber of Commerce, and the directors, on the face of the report, hold that "Columbia's street car system must go and in its place a motor bus system—properly safeguarded — must come." The report of the investigating committee follows in part:

> After careful investigation of traffic conditions in Columbia, we have found that if the street railway system is continued for even a short time, it is necessary that the system be further curtailed through the elimination of certain non-paying lines.
>
> Therefore, if a bus service can be secured that will give better service, we favor such a bus line, provided that it be properly and adequately financed and that it can be properly regulated as to fare, facilities and schedules.

COMPANY GIVES FIGURES

The railway has given out a statement in which it says:

> Decreasing revenues from month to month tell the story of why the company, as a matter of business, is willing to consider a proposal of a bus company, recently organized, to provide some other means of transportation. The officials of the street car company want Columbia to have the best system of transportation possible, and since the proposal of operating buses comes from the bus company, the railway people want to see the best interests of the public served. If buses are better the company is for the buses, and if not, then the company will continue to do its best to serve with the co-operation of the public and official bodies.

The company then goes on to state that operation of street cars in Columbia shows a loss of $30,584 in gross revenue for the first eight months of the year 1925 as compared with the first eight months of 1924. The total revenues from transportation in the eight months of 1924 were $134,676 and in eight months of 1925 were $104,092. The company said further:

> In August of 1925 there was a loss of transportation revenues of $4,709 as compared with August, 1924. The transportation revenues in August this year were $10,618 and in August, 1924, were $15,328.

Other figures are given to show the loss sustained monthly by the railway.

The bus company is preparing to go before the City Council in the near future and ask for its consent to operate through the city streets.

Jitneys carrying passengers to any part of the city for 10 cents have played no little part in cutting down the railway revenues. The street car fare is 7 cents, with 3 cents additional for transfers. Some years ago there was a strike of street car motormen and conductors and many of them quit the employ of the company and began operating jitneys. Investigation at the city hall reveals the fact that the licenses issued to these jitney drivers are transferred often—that the man who obtained the license at the first of the year rarely retains it longer than a few months. The bus people seem of the opinion that they will drive the jitneys from the streets in a short time.

Buses Ahead for Cincinnati

The Cincinnati Street Railway, Cincinnati, Ohio, will apply for a supplementary franchise to operate buses as feeders to the electric railway system as soon as the property is restored to the company.

To this end a survey is now being made by competent authorities to determine the proper location of such lines. Some of the lines will be feeders to the present system, and others of an experimental character will operate downtown from districts already served by street cars. They will be so arranged as to make a thorough test of motor bus service under varying conditions.

The company will present an ordinance supplementing Ordinance 322-1925, the street car ordinance just passed by Council, authorizing bus operation at an initial 10-cent fare and prescribing the other terms of such operation. The company's spokesman said:

> The conditions of this operation in connection with the street car system are quite different from the conditions set out in the ordinance now pending before Council. Hardly any of the provisions of that ordinance excepting the police regulations will apply to the new operation. It is especially important that the arrangement of the new street car company bus lines be made in conjunction with the street railway director, and not with some new official who is not conversant with transportation problems. I believe it would be unwise for Council to attempt to pass on each individual bus line, and believe that discretion to establish such lines should be left with the street railway director.
>
> As a matter of fact, we believe that all bus operation should be under a single head. The transportation problem of the city of Cincinnati is a unit and it would be ridiculous to have two conflicting officials subject only to the occasional action of Council. The city plan recognizes the single character of this problem.
>
> How can these two services be considered together if we have two officers competing with each other and encouraging wasteful competition between street railway and buses. By all means the present ordinance should be amended so as to put entire control in the hands of a single director of transportation. The present ordinance should also exempt from most of its provisions the buses regulated by the ordinance supplementing the street railway ordinance which will be presented to your committee at once. It is not our idea to create any monopoly of the motor bus transportation in the hands of the street railway, but the entire problem should be worked out by a single head as a single transportation question, not to preserve any particular interest, but for the welfare of the entire city.

Program Announced

Worcester Consolidated Will Replace Trolleys by Buses—Many Lines Affected

The most extensive replacement of trolleys by buses yet undertaken by the Worcester Consolidated Street Railway, Worcester, Mass., has just been announced. The Consolidated statement affects the Clinton to Leominster, Worcester to Clinton, Worcester and Marlboro and Marlboro and Northboro lines, which have in the past been among the most important suburban lines of the system.

Service on the Worcester to Clinton and Clinton to Leominster lines will be abandoned on Oct. 4. On that day buses will be run between Worcester and Clinton on a two-hour schedule. The buses will be operated through West Boylston. This is due largely to the fact that the state road through Boylston is not in good condition. The company will take care of its Boylston patrons by running the Worcester-Lincoln street line to the center of Boylston.

There will be no service by trolley from Clinton in the direction of Lancaster and Leominster. An independent bus line operates from Clinton to North Lancaster, but from that point to Leominster there will be no service.

In Clinton there will be no trolley cars as the Worcester and Leominster lines are the only ones that enter there. Clinton has had trolley service since 1893, when the line from South Lancaster was put in operation. In 1896 the old Clinton to Leominster line came into existence and a few years later this was extended to Worcester.

On the Worcester and Marlboro line bus service will start on Oct. 5. At the same time all trolley service between Worcester and Marlboro and Northboro will be discontinued. Buses will be run express from Worcester to the Shrewsbury post office and local from that point to Marlboro. On the return trip they will run local from Marlboro to Shrewsbury and express to Worcester. The trolley cars will continue to run between Worcester and Shrewsbury. Both buses and trolleys will operate on an hourly schedule. The time-tables are so arranged that Shrewsbury patrons will have half-hour service. The Consolidated originally planned to eliminate all competition between its own buses and trolleys by making the express limit far beyond the Shrewsbury point now set for buses, but a study of the situation led officials to believe the plan now proposed would work out more satisfactorily.

The running time between Worcester and Marlboro by bus as compared with the present trolley service will be cut fifteen minutes to one hour. The fares will remain unchanged.

The Worcester license board has granted the Consolidated three licenses for buses to be operated on the Worcester to Marlboro line.

In Leominster the Consolidated has announced cars will continue in operation from the center of the town to the carhouse to accommodate employees of a large manufacturing plant.

Extensions Sought in Philadelphia

The Philadelphia Rural Transit Company, a subsidiary of the Philadelphia Rapid Transit Company, has asked the Pennsylvania Public Service Commission to approve a bus line extension from 63d and Market Streets to the 69th Street terminal. R. W. Horton, president of the bus company, says that the proposed extension was a result of a desire to comply with the requests from many residents in suburban sections for service to the terminal, where connection with the high-speed lines could be made.

The Philadelphia Rural Transit Company also made application for permission to operate a bus line from the 69th Street terminal through Upper Darby Township to the Philadelphia boundary line.

A. Merritt Taylor, president of the Philadelphia & West Chester Traction Company, said his company regarded the establishment of service upon the route in question as premature, but had decided to meet the situation possibly by establishing a motor car line from the 69th Street terminal through Upper Darby Township to the boundary line of Philadelphia. He said connections would be made with the Philadelphia Suburban Transit Company's bus line. Further, he added that an application had been filed with the commission for the operation of that line, and if approved, the line would be placed in operation without any delay. Traffic on his lines was not increasing, he stated, and the company could not bear additional losses suffered through competitive lines.

Steam and Electric Railways Begin Joint Bus Service

Better passenger, mail and express transportation between North Attleboro, Mass., and Providence, R. I., is expected to result from the co-operative arrangement placed in effect on Sept. 27 by the Interstate Street Railway and the New England Transportation Company, a subsidiary of the New York, New Haven & Hartford Railroad. The Interstate company has been operating Reo buses over the Plainville, North Attleboro, Pawtucket, Providence route for several months, as told in ELECTRIC RAILWAY JOURNAL for Aug. 29. Under the new arrangement 25-passenger de luxe White buses of the New England Transportation Company will be operated by the street railway.

The hourly schedule heretofore operated will be continued with such additional trips as may be needed. Commuters' tickets purchased from the railroad will be good on buses inbound to Providence in the morning and outbound at night. All railroad passenger trains between Plainville and Providence will be withdrawn except one in each direction each day. Trunks will be carried on the buses for purchasers of railroad tickets. Mail will be carried by motor trucks and buses. A baggage car will be attached to the daily train to carry express packages.

The arrangement was made with the approval of the public utilities of Massachusetts and Rhode Island and of the local authorities. It is to last for 90 days. At the end of that time a permanent arrangement will be made to give each company a fair share of the revenue obtained. The negotiations to this end were conducted by Hemphill & Wells.

Maryland Commission Will Consider Intrastate Applications

The Maryland Public Service Commission has notified the railroads that any applications they may make to operate intrastate bus lines would be given consideration. Since the decision holding that the Public Service Commission had no jurisdiction in granting permits for interstate bus lines was handed down numerous lines have been started, but residents along many of the routes have requested that these services also be permitted to do an intrastate business. The commission held a conference on Sept. 18 with representatives of five railroad and railway companies at which the roads were told that their applications will be considered if the roads decide to file them. Those represented at the meeting were the Baltimore & Ohio Railroad, Pennsylvania Railroad, Washington, Baltimore & Annapolis Electric Railroad, United Railways and the Washington Railway & Electric Company.

Temporary Permit Allowed.—A temporary permit has been issued by the Massachusetts Department of Public Utilities to the Boston Elevated Railway for operating buses in Arlington, Somerville and Medford.

Bus Substitution Allowed.—The Burlington County Transit Company, Burlington, N. J., has been granted permission by the Common Council of Burlington to substitute buses for trolley cars within the city of Burlington.

University Line Started.—The British Columbia Electric Railway, Vancouver, B. C., started on Sept. 16 the operation of a bus line 2½ miles long connecting with the new University of British Columbia at West Point Grey. The equipment consists of six Leyland buses, bought in England, the bodies being constructed in Vancouver. They are the street car type, seating 28 and allowing for 23 standing. It is expected that 1,500 students will be in attendance at the university and all six buses will therefore be required in the morning rush. They will connect with the nearest street car line. Special fares for students will be given from city lines. From the city of Vancouver the fare will be 10 cents by means of commutation strips of ten tickets. Other concessions will be made to students in other suburbs with a 3-cent students' fare on the buses. The regular fare will be 5 cents.

Expands Activities.—The Penn Public Service Company, Erie, Pa., operating interurban trolley service in northwestern Pennsylvania and a recently established bus line between Erie and Meadville, has made an application for further extension of its bus activities to include a new line between Union City and North East, Pa.

Wants Car System Replaced with Buses.—The Yakima Valley Transportation Company has applied to the City Commission of Yakima, Wash., for permission to modify its franchise terms to permit the company to replace its present railway system with a system of buses. The matter will be voted on at a special election on Oct. 14. The City Commission favors the bus project. The Yakima Valley Transportation Company operates 43 miles of line.

Service Extended.—The Connecticut Company has been granted authority by the Public Utilities Commission to extend its bus service from the present terminal at Tunxis Hill, Bridgeport, Conn., to Wilson road in Fairfield.

Franchise Granted.—The Olean, Bradford & Salamanca Bus Lines, Inc., a subsidiary of the Olean, Bradford & Salamanca Railway, Salamanca, N. Y., recently secured a franchise from the town board of Salamanca permitting it to operate buses over highways in the township. Previous petitions had been refused and the board had granted a franchise to the Iroquois Indian Trails Motor Coach Lines, Inc., of Buffalo. This concern has not been able to operate its buses elsewhere in the section, however, and was not represented at the last meeting. The Olean, Bradford & Salamanca Railway has operated a bus into Allegany State Park from Salamanca for part of the summer and plans to substitute bus service for its present railway line between Salamanca and Little Valley.

New Services in Prospect. — The Minneapolis Street Railway, Minneapolis, Minn., has applied to the State Railroad and Warehouse Commission of Minnesota for the use of twelve buses southward to the city limits, half to be double-deck. The cost of the buses will be $250,000. The 30-passenger buses will be utilized to supplement railway service on a five-minute headway and the double-deckers for rush service in early, late and noon hours. The upper-deck cars will be topped for use in cold weather. The fare will be 10 cents. In addition the company plans another interurban bus line and crosstown lines to connect trolley terminals according to ordinances that are being drawn.

Permits for Additional Lines Sought.—The Gary Street Railway, Gary, Ind., has petitioned the Indiana Public Service Commission for certificates covering nine additional bus lines. One of the routes is more than 100 miles long. The routes include Hammond to East Chicago, Indiana Harbor to East Chicago, Hammond local service, Gary to Valparaiso, Hammond to Valparaiso, Gary to Hobart and Gary to LaFayette.

Subsidiary Petitions to Run Buses.—The Geneva, Seneca Falls & Auburn Railroad Company, Inc., has petitioned the Public Service Commission for permission to abandon part of its Geneva city line. The company asks through its subsidiary, the Geneva Railway Bus Lines, Inc., for a certificate to permit operation of bus routes in the city. The petition merely states that the parts sought to be abandoned are no longer necessary for successful operation or convenience.

Financial and Corporate

Brooklyn City Net Off

Traffic Lost to Rapid Transit Lines—Short Haul Riding Expected to Be Recovered

Gross revenues of the Brooklyn City Railroad, Brooklyn, N. Y., from transportation for the year ended June 30, 1925, were $11,363,281, a decrease of $411,646 as compared to the previous year. Net fell off $590,143. The decrease in gross is attributed to four major causes:

1. The unfavorable weather which prevailed during the greater part of the summer of 1924.

2. The abandonment of operation over the Williamsburg Bridge.

3. The serious curtailment of service over the Brooklyn Bridge during the greater part of the winter of 1924-1925, due to the reconstruction of the roadways of the surface railways undertaken by the Department of Plants and Structures of the city of New York.

4. The changes in traffic conditions in the Greenpoint district, which followed the opening of the Fourteenth Street - Eastern District subway line. H. H. Porter, president of the company, says that experience in other sections of Brooklyn has shown that as time goes on the increase in short-haul traffic in the sections in which subway lines are opened results in increased net earnings which may ultimately equal the previous earnings of such lines. Increase in short-haul traffic during the past few months on the lines affected clearly confirms this conclusion.

In spite of the decrease in gross earnings the company has continued its policy of liberal expenditures for maintenance. During the year there was expended and reserved for the replacement of way and structures $1,407,398, an increase of more than $163,000 as compared with the previous year.

In closing the accounts for the year, it was found necessary to make additional provision for unforeseen increase in the cost of accidents. Accordingly operating expenses have been charged and net income reduced by an amount sufficient to increase the provision already made month by month to what is believed to be a maximum average percentage of the gross earnings under normal operating conditions needed to take care of accidents and damages and a further provision of $200,000 has been appropriated out of earned surplus of the company, which effects an increase of $103,901 in the casualty reserve at June 30, 1925, over that at June 30, 1924.

The 200 new passenger cars purchased and placed in operation during 1923-24 proved so acceptable to the traveling public that the directors authorized the acquisition of 335 additional cars of substantially similar type, a portion of which have already been delivered and all of which it is expected will be in operation by October, 1925. The cost of these 335 cars was met by the sale in January, 1925, of $3,750,000 of ten-year 5 per cent car trusts issued under the Philadelphia plan, and by the subsequent sale of $1,627,000 of the company's first consolidated mortgage 5 per cent bonds, held in the treasury since the settlement of the guarantee fund.

The company, upon the return of its property in 1919 by the receiver of the Brooklyn Rapid Transit Company, found itself with an insufficient number of cars and it was compelled to lease 469 cars from the receiver of the Brooklyn Rapid Transit in order to render the public adequate service. From time to time the Brooklyn City Railroad has purchased additional cars and the number leased has been reduced. During the past year 371 cars have been rented at a cost of approximately $200,000 a year and the expense for the upkeep and maintenance of the cars so rented. Upon delivery of the 335 cars above referred to, all of the leased cars will be returned and the Brooklyn City Railroad will be in a position to give adequate and more efficient service with its own rolling stock at a decreased expense.

There has been no change in the status of the construction suit except that the Brooklyn-Manhattan Transit Corporation, the successor to the Brooklyn Rapid Transit Company, has been permitted by the court to intervene and file an amended and supplemental bill of complaint increasing the amount claimed by $3,200,000. Officers of the Brooklyn City Railroad are advised by counsel that, in their opinion, this claim cannot be sustained.

The last annual report of the railway stated that the Transit Commission had approved the issue of the $4,000,000 of additional stock authorized in February, 1924. As provided in such approval, the Brooklyn City Development Corporation, a subsidiary of the Brooklyn City Railroad, was duly dissolved and its assets acquired by the Brooklyn City, and on Sept. 30, 1924, the additional stock was issued as a 33⅓ per cent stock dividend.

There were declared during the year one dividend of 25 cents a share on the 1,200,000 shares then outstanding and three dividends of 20 cents a share and one extra dividend of 5 cents a share on the 1,600,000 shares of stock of $10 par value which have been outstanding since Sept. 30, 1924, a total of $1,339,854.

INCOME STATEMENT OF BROOKLYN CITY RAILROAD

	Year June 30, 1925	Year June 30, 1924
Passenger revenue	$11,363,196	$11,774,853
Other car revenue	85	75
Total transportation revenue	$11,363,281	$11,774,928
Advertising and other privileges	96,000	100,818
Rent of land, buildings, etc.	146,292	131,700
Rent of tracks and terminals	56,590	52,961
Miscellaneous revenue	1,515	2,690
Total operating revenue	$11,663,679	$12,063,099
Operating expenses		
Maintenance — Way and structures	$1,407,398	$1,243,751
Equipment	1,441,866	1,584,101
Power	953,422	1,026,068
Operation of cars	4,143,844	4,111,427
Injuries to person and property	583,183	361,892
General and miscellaneous expenses	547,982	530,007
Total operating expenses	$9,077,698	$8,857,250
Net operating revenue	$2,585,981	$3,205,848
Taxes assignable to operation	775,363	849,552
Operating income	$1,810,617	$2,356,296
Non-operating income	101,940	163,159
Gross income	$1,912,558	$2,519,456
Income deductions		
Interest	$282,688	$308,157
Rent of cars, tracks, etc.	204,832	209,578
Other deductions from income	13,461	
Total income deductions	$500,982	$517,736
Net income	$1,411,576	$2,001,719

Railway Right-of-Way Made Part of Trunk Line Highway

The Public Service Commission of West Virginia has granted to the Sistersville & New Martinsville Traction Company the right to suspend operation on its line between the two towns on Sept. 30. The company was granted the privilege of suspension because of the availability of its right-of-way as the only route for a link in a trunk-line hard-surfaced road being constructed by the state. No provision for substitute service has been arranged pending the completion of the hard-surfaced road. The Sistersville & New Martinsville Traction Company, successor to the Union Traction Company, connects Sistersville, New Martinsville, Paden City and Brooklyn Junction. The company, with office in Sistersville, operates 12 miles of line.

News of Washington Interurban Expected

J. E. Aldred, representing the group which is said to have secured control of the Washington, Baltimore & Annapolis Railway, Baltimore, Md., is expected to make an announcement soon regarding the future of the property. It is generally believed that the plans ahead will provide for a division of the public utilities end of the road from the transportation end, with a probable consolidation of the former with the Consolidated Gas, Electric Light & Power Company, Baltimore.

Receivers Appointed for Subsidiary Bus Company

In the opinion of those interested, it has been found advisable for practical purpose of administration to have the same receivers as are now acting for the Detroit United Railway, the Security Trust Company and W. C. Dunbar, appointed for all of the subsidiary corporations and interests of the Detroit United Railway. As a result an order has been entered in the United States District Court in an equity proceeding appointing the Security Trust Company and W. C. Dunbar receivers for the Highway Motor Bus Company.

Milwaukee to Louisville Electric Line Rumor Revived

Arthur Brady of Anderson, formerly president and now receiver of the Union Traction Company, Anderson, Ind., is reported to have said that although reports had been current for months that Mr. Insull was considering purchase of the company, no one had approached him on the subject or had talked to any of the directors so far as he knew. According to the Indianapolis *Times*, Mr. Brady said:

> Just look at the map and judge for yourself whether the line would be of value to them.

The same newspaper authority says that color is given the report that Insull is interested in Union Traction Company affairs by the significant fact that Interstate Public Service Company work trains have been seen recently at various points on the former company's lines.

Control of the Union Traction Company line from Indianapolis to Peru would be an important, almost essential, link in any proposed Milwaukee-Chicago-Indianapolis-Louisville line. The Insull interests now own lines from Milwaukee to Chicago, and Chicago to Gary at the north end of the proposed system, and their Interstate Public Service Company supplies the southern end of the chain.

Martin J. Insull is one of the four owners of the Winona Service Corporation, operating the Goshen to Peru line. Other individuals interested with Insull in this line are: James P. Goodrich, former Governor of Indiana; T. C. Frazer, of Warsaw, and Harry Reid, president of the Interstate Public Service Company.

Thus Insull interests already own or are interested, though individuals, in lines connecting Milwaukee with Louisville, with the exception of the Union Traction Company line from Indianapolis to Peru, 76 miles in length, and the gap between Goshen and Gary.

Receiver Sought for Boise Valley Traction

A receiver for the Boise Valley Traction Company, Boise, Idaho, and foreclosure of a mortgage alleged to be security for an issue of bonds are sought in a bill of complaint, filed on Sept. 23 in the United States District Court by the Colonial Trust Company and F. F. Brooks, Pitsburgh, Pa., as trustees. Among the co-defendants are the Idaho Power Company, the Power Securities Corporation, the Electric Bond & Share Company and the Boise & Interurban Railway, the original company operating between Boise and Caldwell. The conveyance of the mortgage was made by the Boise & Interurban Railway about April 1, 1906, to secure payment on bonds totaling approximately $5,000,000 of which $964,000 were actually issued. The plaintiffs now seek foreclosure on the $964,000 alleged to be due, together with interest, bringing the total to $1,084,500. The complaint alleges that the Boise Valley Traction Company has been at all times dominated and controlled by the Idaho Power Company.

The Boise & Interurban Railway referred to in the complaint was organized under the Idaho laws in August, 1905, and from that time until about 1912 operated an electric interurban line in Boise and Caldwell and between the two cities.

President Walker a Binghamton Receiver

W. H. Riley, attorney of Binghamton, N. Y., and E. M. Walker, president of the Schenectady Railway, were on Oct. 1 appointed equity receivers of the Binghamton Railway by United States Judge Cooper. Application for a receivership was made before Judge Cooper at Syracuse two weeks ago.

Abandonment Petition Scheduled.—A hearing will be held by the Public Service Commission at Albany on Oct. 7 on the petition of the Hudson Valley Railway for approval of abandonment of its Mechanicsville-Ballston line and the Geysers, Celt and Kaydeross Park lines in Saratoga Springs.

Line to Cease Operating.—The Cincinnati & Hamilton Traction Company has been permitted to abandon and dismantle its line which runs from Glendale to Hamilton, Ohio, a distance of 11.3 miles. The application was filed on June 24 and was not opposed at the hearing on Sept. 12. Testimony taken for the commission revealed the fact that revenues decreased steadily in recent years due to the establishment of bus routes running parallel to the line. It was conceded that success was too remote to justify continuance of service.

Wants to Abandon Portion of Line.—The International Railway, Buffalo, N. Y., petitioned the Public Service Commission on Sept. 24 to approve the abandonment of a portion of the Military Road-Gratwick line in the cities of Tonawanda and North Tonawanda. Permission is also sought to abandon the single track on Robinson Street between Vandevoort Street and Payne Avenue. The company alleges that operation of this part of the line has been unprofitable and that it has been prevented from increasing its fares in the two cities by the local authorities, who claim franchise restrictions prevented fare increases without local consent. This abandonment, the petition states, has now become imperative because the local authorities of both cities have adopted ordinances providing for the pavement of the streets. It is said there is no prospect that traffic will increase sufficiently to provide an adequate return from the continuance of operation at present fares.

New Jersey Company to Sell 6 per Cent Preferred.—The issuance of 115,500 shares of 6 per cent cumulative preferred stock of the Public Service Corporation of New Jersey has been authorized by the board of directors. This is the first issuance of 6 per cent preferred to be offered to the present holders of the 8 per cent cumulative preferred and the 7 per cent cumulative preferred in the proportion of one share of the 6 per cent for each four shares of such stock held on Oct. 7. The shares are offered at $100 par a share and accrued dividend. Beginning Nov. 1 the new issue will be offered for subscription under the customer ownership plan.

Partial Abandonment Sought. — The Auburn & Syracuse Electric Railroad has petitioned the Public Service Commission for consent to abandon its trolley system in Auburn, N. Y., beginning at North and Genesee Streets and running through North Street, Park Avenue, Nelson, Lansing and Fulton Streets to Seymour Street, the end of the line. The petition alleges that this route does not pay operating expenses and that the traffic is so slight that no public convenience or necessity is served by its operation. A further allegation is that the company is unable to pay the cost of its share of repaving as proposed by the city.

To Abandon Trolley Temporarily.—Contending that its trolley service within the borough of Chambersburg, Pa., is a losing proposition, the Chambersburg & Gettysburg Electric Railway recently petitioned the Pennsylvania Public Service Commission for permission to abandon its service on that portion of its line for a period of four months. Plans provide for the continuance of operation of the line from Chambersburg to Caledonia. The experiment will prove whether the Caledonia line can be operated profitably with the town line idle. If the Caledonio line operates at a deficit the company may abandon all service and substitute buses for the Caledonia route.

Removal of Trackage Approved.—The Pennsylvania Public Service Commission has approved the joint action of the city of Philadelphia and the Philadelphia Rapid Transit Company looking toward the removal of unused railway tracks. It is felt that the elimination of miles of unused trackage will aid in the city's plans for repaving. The present program relates mostly to small stretches of tracks which had long been abandoned because of rerouting improvements in the service.

Preferred Stock Offered. — Tucker, Anthony & Company, New York, are offering 80,000 shares of prior lien preferred stock of the New England Public Service Company, the recently formed holding company of the Insull properties. The price is 98 a share and accrued dividends to yield 7.14 per cent. The New England Public Service Company upon completion of the present financing will own, among other properties, practically all the common stock of the Central Maine Power Company, which controls some railway properties in Maine, the Manchester Traction, Light & Power Company, Manchester, N. H., and through stock ownership the Rutland Railway, Light & Power Company, Rutland, Vt.

Net for Eight Months Improves.—For the first eight months of this year the net income of the United Railways & Electric Company, Baltimore, Md., shows a 2.58 per cent increase over the corresponding period of last year. This year's net income is $507,394 and that for the first eight months of 1924 was $494,610. A net income of $68,538 was reported for August. This was a decrease of $1,529 over August, 1924. Passenger revenue for the month was $1,294,747, a decrease of $3,502.

Legal Notes

CONNECTICUT—*Commission Ruling on One-Man Car Upheld.*

A municipal ordinance, passed by the city of New Haven, requiring two trainmen on each street car operating on the streets of that city but applying to cars of a company which also operated over a wide area and through many communities, was held to be invalid. The court declared that the subject matter of such an ordinance was within the exclusive jurisdiction of the Public Utilities Commission of the state. [Connecticut Co. vs. City of New Haven et al., 130 Atlantic Rep., 169.]

FEDERAL DISTRICT COURT — *Valuation and Rate of Return.*

It is the property and not the original cost of which the owner, such as a public utility, may not be deprived without due process of law. While reproduction cost, less depreciation, is the dominant element in determining rate base for a public utility, it is not exclusive of other elements. At the present time, a reasonable rate of return, according to well recognized custom, in a regulated business, like that of a gas company, is not less than 8 per cent. [Consolidated Gas Co. of N. Y. vs. Prendergast et al., 6 Federal (2d) Rep., 243.]

GEORGIA — *Company May Discontinue Operation Conducted at Loss.*

The usual permissive charter of a railroad company does not give rise to any obligation on the part of a company to operate its road at a loss. No contract that it will do so can be elicited from an acceptance of the charter or from putting the road in operation. If at any time it develops with reasonable certainty that its future operation will be at a loss, a company may discontinue operation, though it has not surrendered its charter. To compel it to go on at a loss or give up the salvaged value would be to take its property without the just compensation which is a part of due process of law. This quotation from Texas v. Eastern Texas R. Co., 264 U. S. 79, was quoted by the Supreme Court of Georgia as authority for its decision in a case before it. [Morris et al. vs. Atlanta Northern Ry., 129 Southeast. Rep., 68.]

MASSACHUSETTS—*Remedy Against Unlawful Bus Operation.*

Unlawful bus operation can be prevented either by injunction or mandamus. A railway company which transports passengers between points served by the unlawfully competing bus and is injured by its service may maintain a suit for injunction. In behalf of the general public also, the attorney-general may invoke relief by mandamus or injunction. [N. Y., N. H. & H. R.R. Co. vs. Deister, 148 Northeast. Rep., 590.]

MISSOURI—*Duty of Interurban Motorman When Approaching Station.*

A passenger waiting on a station platform in the evening has a right to expect there will be a headlight on the approaching car, that a warning bell or whistle will be sounded, and that the car will stop at the platform. In an action by a prospective passenger, who was struck by a car without a headlight and with no warning bell or whistle, the defendant requested an instruction to the jury that the passenger could not recover if the evidence showed that by looking he could have seen the car approaching in time to have avoided the accident. Such an instruction was properly refused by the trial court, because the passenger was only required to exercise ordinary care, and the instruction proposed would have charged him with negligence in failing to see the car if it was possible for him to see it. [Willi vs. United Rys. Co. of St. Louis, 274 Southwestern Rep., 24.]

MISSOURI—*Statute Requiring Employer to Give Service Letter Construed.*

A state statute requires of a corporation, when an employee leaves its service, to give such employee, if he asks for it, a letter setting forth the nature and character of the service rendered by him and the cause, if any, of his leaving the service. A motorman was discharged by the defendant company, and received a statement giving simply the dates during which he was in the company's employ. He brought suit for damages on the claim that the paucity of the information in the letter prevented him from getting employment. The company's testimony was that the employee's services were unsatisfactory and if this had been mentioned in the letter, the statement would have been of no benefit to him in securing employment. The court held that the letter was inadequate, but there was no evidence to connect the employee's failure to obtain employment with the letter, so that only nominal damages should have been awarded in a civil suit. [Soule vs. St. Joseph R. L. H. & P. Co. 274 Southwest. Rep., 517.]

NEW JERSEY—*Death Must Be Directly Related to Injury.*

In an action for death, the decedent died from pulmonary tuberculosis 15 months after the accident and no symptoms of the disease appeared for more than 12 months after the accident. To make the defendant responsible for the death, the plaintiff has the burden of proving that the death was not due to a cause with which the defendant was unconnected. [Migliaccio vs. Public Service Railway, 130 Atlantic Rep., 9.]

OHIO — *Municipality May Control Its Streets and Traffic Thereon, but under Guise of So Doing May Not Materially Interfere with General Efficiency of an Authorized Utility.*

The city of Lorain passed certain ordinances controlling and limiting bus operation on certain streets, the purpose, as recited in the preamble being the existing congestion on those streets and the fact that the transportation service being rendered by the street car lines would become impaired and less sufficient to the inhabitants of the public. The bus lines affected had received powers from the State Public Utility Commission, but the Supreme Court of Ohio held that the ordinances passed by the city of Lorain did not constitute unreasonable local police regulations relating to traffic. The court declared, however, that under the guise of so regulating traffic, a city may not materially interfere with the general efficiency of a utility authorized by hte Public Utility Commission. [Lorain Street Railway vs. Public Utilities Commission, 148 Northeast. Rep., 577. (See also for somewhat similar Ohio decisions: Scheible et al. vs. Hogan, 148 Northeast. Rep., 581, and Northern Ohio T. & L. Co. vs. Public Utilities Commission, 148 Northeast. Rep., 584. In these two latter cases, ordinances passed by the municipalities which regulated routes and stopping points of the buses within the city were upheld.

VIRGINIA—*Company Dedicating to Public Street Except Railway Right-of-Way Thereon Not Liable Later for Expensive Repaving Between Tracks.*

A land company built a highway, using for part of its route an old county road and dedicated the highway to the county, reserving the right to construct an electric railway, which was built. Later, the city extended its boundaries to include the highway and endeavored to hold the railway company liable for repaving, but this was denied by the court. The railway was held liable, however, for a proportion of the maintenance of a viaduct, built and dedicated to the public by the same land company but under somewhat different conditions. [Lynchburg T. & L. Co. vs. City of Lynchburg, 128 Southeast Rep., 606.]

VIRGINIA—*Liability for Injury to Infant Guest in Automobile*

An infant, between three and four years of age, while riding in an automobile driven by her father, was injured in a collision with a trolley car. Owing to her age the child was incapable of contributory negligence, but that shown by the driver of the automobile, her father, could not be pleaded as a bar to recovery by the railway company whose car struck the automobile, unless the negligence of the driver was the sole proximate cause of the injury. If the negligence of both operating together was the proximate cause of the injury, then the plaintiff has the right of action against either or both. [Williams vs. Lynchburg Traction & Light Co., 128 Southeast. Rep., 732.]

WASHINGTON—*Liability for Car Overhang and Excessive Speed*

A person who exercises ordinary prudence should take notice of the overhang of a car when it is rounding a curve or on straight track. If a person is injured by such overhang, because standing too near the track, the fact that the trolley car was operated at a greater speed than that permitted by ordinance does not create liability for the company unless the speed was the proximate cause of the injury. [Beach vs. Pacific Northwest Traction Co., 237 Pacific Rep., 737.]

Personal Items

J. B. Stewart, Jr., at Cincinnati

Youngstown Municipal Railway Official Made General Manager of Road in Ohio City

Joseph B. Stewart, Jr., superintendent of the Youngstown Municipal Railway, Youngstown, Ohio, will become general manager of the Cincinnati Railway and assistant to Walter W. Draper, vice-president of the Cincinnati Traction Company, who will be president of the Cincinnati Street Railway on Nov. 1, under the reorganization.

Mr. Stewart has been with the Pennsylvania-Ohio System for twelve years. He started as safety and efficiency engineer of the railway and electric system on Oct. 1, 1913. He continued in that capacity until June, 1916, when he was appointed superintendent of traffic and equipment. A year later he was made assistant to the general manager, and on Jan. 16, 1919, with the start of operations in Youngstown under the service-at-cost franchise, he became general superintendent of the city traction system.

Born in Baltimore, he moved in his youth to Massachusetts. He was graduated from Newtown (Mass.) High School in 1904 and received his technical schooling in civil engineering at the Massachusetts Institute of Technology, giving special attention to railway subjects. While attending school, he devoted his vacations to active utility work and in 1909 entered upon work as a civil engineer for the Middlesex & Boston Street Railway, Newtonville, Mass. In October of the same year he became assistant to M. C. Brush, who was then general manager of the Buffalo & Lake Erie Traction Company, Erie, Pa. A year later he became resident engineer for the Griffin Wheel Company on construction work in Chicago. On Nov. 1, 1912, he was appointed park manager for the Lehigh Valley Transit Company, Allentown, Pa., and also assisted the traffic manager in starting the high-speed service between Allentown and Philadelphia. In this connection he was associated with R. P. Stevens, going to Youngstown soon after Mr. Stevens went to that city.

Mr. Stewart has been active in committee work of both the Central Electric Railway Association and the American Electric Railway Transportation and Traffic Association.

W. C. Kline Will Leave Railway Field

W. C. Kline, manager of railways and chief engineer for the Monongahela West Penn Public Service Company, Fairmont, W. Va., will withdraw from the local traction organization within the next two or three months to enter the engineering and construction business, probably in Fairmont. He will relinquish the post just as soon as his successor has been chosen.

In 1919 Mr. Kline was made chief engineer for the Monongahela Valley Traction Company and in 1922, when Don H. Blanks resigned as manager of the railway department of the Monongahela Power & Railway Company, Mr. Kline was made manager of that department, as well as chief engineer. He went to Fairmont in 1915, being the engineer in charge of the construction of the Helen's Run and Bingamon branches of the Western Maryland Railroad. In 1918 he went out on general war work construction propositions on the main line of the Western Maryland, returning as chief engineer for the traction company in 1919. Before going to Fairmont he had a wide experience in engineering and construction work with the Pennsylvania, Southern Pacific, Western Pacific and Western Maryland Railroads.

Mr. Kline is a native of Philadelphia. He was graduated from Lehigh University in 1905.

Garrett Seely in Operating Post

Garrett T. Seely has been appointed vice-president of the Chicago Motor Coach Company, Chicago, Ill., after several years service with the Hertz interests. The new post is a promotion from his position as general sales manager of the Yellow Coach Manufacturing Company. Mr. Seely formerly was assistant general manager of the Chicago Rapid Transit Company and also was assistant director of the passenger transportation fleet of the Emergency Fleet Corporation during the war. Before he became connected with the Yellow Coach interests he was with the Republic Railway & Light Company at Youngstown, Ohio.

H. F. Darbyshire New Manager at Ottumwa

H. F. Darbyshire, former manager of the utilities at Washington, Iowa, has been appointed manager at Ottumwa for the Southern Utilities Company of Iowa. This company is the new owner of the utilities there, including the railway, formerly embraced in the Ottumwa division of the Northern States Power Company.

The new manager at Ottumwa has been affiliated with electric interests for some years. In September, 1908, at the age of eighteen, he started with the Iowa Gas & Electric Company at Washington in the commercial department. He was appointed manager of the company less than two years later. In 1914 he assumed the managership of the Mount Pleasant Gas Light Company in addition to the Iowa Gas & Electric Company. A few years later both companies were merged. From July, 1916, to September, 1924, he continued as manager of the Iowa Gas & Electric Company. During that period the company grew conspicuously and at the time of the sale of the Iowa Southern Utilities Company in September, 1924, it was serving 22 towns with electric service and two towns with gas service. Following the sale in September, 1924, and until August, 1925, he was not only manager of the Iowa Gas & Electric property but also of the Sigourney division of the Iowa Southern Utilities Company.

Arnold Lawson in Charge of New Haven's Bus Lines

Arnold Lawson has allied himself with the New York, New Haven & Hartford Railroad as superintendent of the eastern lines of the newly formed New England Transportation Company, which will operate the New Haven's buses. His headquarters will be in Providence, R. I. For some time Mr. Lawson has been operating the Dreamwold Motor Coach line connecting Boston, Providence and Newport. It is understood that this line will be taken over by the New Haven Railroad.

C. E. Fahrney, Leaves Ottumwa

Charles E. Fahrney, manager of the Ottumwa, Iowa, properties of the Northern States Power Company under the Byllesby Engineering & Management Corporation, will be assigned by the management corporation to another post in its organization. Mr. Fahrney is still at Ottumwa, but his principal work there now is in acquainting his successor, H. F. Darbyshire, with the details of the office.

Mr. Fahrney was born in Nebraska City, Neb. At an early age he moved to Ottumwa, Iowa, with his parents, and was educated in the grammar and high schools. Shortly after he was graduated, Mr. Fahrney became storekeeper and power house clerk with the Ottumwa Electric Railway. About six months after he entered the company's employ, a receiver was appointed for the company and Mr. Fahrney was promoted to the position of collector and clerk in the office. Later he was made superintendent of transportation.

In the latter part of 1905 the property passed to the control of H. M. Byllesby & Company. Mr. Fahrney continued as superintendent of transportation until 1911, when W. F. Raber, who was manager, was promoted to the managership at Pueblo, Col. Mr. Fahrney succeeded him at Ottumwa.

The Ottumwa property has the distinction of operating one of the first electric railways in the country. The first cars were put in operation on Thanksgiving Day in 1899. The company furnishes electric light, power, railway service and steam heat.

At the present time Mr. Fahrney is first vice-president of the Iowa Section of the N. E. L. A., first vice-president of the Ottumwa Chamber of Commerce, director in the Ottumwa Savings Bank, the Ottumwa Hotel Company and the Wapello Club, director and past-president of the Rotary Club.

In 1916 and 1917 he was vice-president of the Iowa Street and Interurban Association, president in 1918 and 1919, and secretary and treasurer in 1921 and 1922.

Leslie E. Delf Transferred to Fort Worth

Leslie E. Delf, electrical engineer for the Northern Texas Traction Company, Fort Worth, Tex., has been transferred to the Louisiana Electric Company at Lake Charles, La., as superintendent of light and power. Mr. Delf's transfer to the Louisiana property will give him a large field in which to work as the property has several expansion projects under consideration.

Mr. Delf has been electrical engineer for the Northern Texas Traction Company since 1921. In this capacity he has had charge of all of the trolley overhead and feeders, railway substations, and the engineering and construction work in connection with the small interurban lighting property operated by the traction company.

Mr. Delf was graduated from the University of Michigan in the class of 1915. From 1915 to 1921 he was connected with the El Paso Electric Company in various capacities, including that of electrical engineer.

For two years between the above dates Mr. Delf served as an officer with the 315th Engineers of the U. S. Army, during which time he saw considerable service overseas in the World War and with the Army of Occupation in Germany.

W. L. Wood, Jr., manager of the Southwestern Gas & Electric Company at Texarkana, Ark., recently was presented with $5,000 in cash and $5,000 in stock by the Dawes brothers of Chicago, former owners of the Texarkana utility. This gift was made as a reward for faithful services on the occasion of the formal transfer of the Southwestern Gas & Electric Company from the Dawes ownership to the Middle West Utilities Company, which recently purchased the utility at Texarkana and a number of others that were long in the hands of the Dawes interests. Mr. Wood will probably remain in Texarkana as the local manager.

G. Milson has been appointed passenger traffic manager of the International Railway, Buffalo, N. Y. Mr. Milson formerly was assistant traffic agent.

W. S. Wise, Meadville, was sworn in at Harrisburg on Sept. 16 as a member of the Public Service Commission to succeed S. Ray Shelby, removed from office by Governor Pinchot during the hearings in the 7½-cent fare case in the city of Philadelphia.

W. G. Tyson, city passenger agent of the International Railway, Buffalo, N. Y., has been appointed traveling passenger agent.

John T. Martin has been appointed superintendent of bus transportation for the Interstate Public Service Company, Indianapolis, Ind. Mr. Martin has been assistant trainmaster of the railway.

Irvin Mattick has resigned as clerk in the mechanical department of the United Railways, St. Louis, to join the staff of the publicity department of the Southwestern Bell Telephone Company, St. Louis. Mr. Mattick entered the service of the United Railways in May, 1913. He has been a conspicuous figure in literary circles in St. Louis for some years, both as a writer and as vice-president of the St. Louis Writers' Guild. He is a contributor to many of America's leading magazines and his verse, too, has often appeared in daily papers. Some of his poetry has been widely quoted, and one poem in particular gained for him a letter of appreciation from the late Theodore Roosevelt, former President of the United States. The Roosevelt letter was inspired by a poem by Mr. Mattick, written as a tribute to the memory of one of the Colonel's sons.

Colonel Schoepf and Mr. Sanders in Other Work

Cincinnati Men Withdraw from Railway —One in Consulting Work—Other with Car Company

Col. Theodore H. Schoepf, vice-president and chief engineer, and H. L. Sanders, vice-president and treasurer of the Cincinnati Traction Company, Cincinnati, Ohio, have tendered their resignations, which become effective on Nov. 1.

Colonel Schoepf is a brother of W. Kesley Schoepf, president of the Cincinnati Traction Company. He will open an office in the Traction Building as a consulting engineer. Mr. Sanders will become vice-president and treasurer of the Cincinnati Car Company, of which W. Kesley Schoepf is president. Mr. Schoepf said he was contemplating no important changes in the personnel of the Cincinnati Car Company, after he surrenders his duties as president of the Cincinnati Traction Company and the Ohio Traction Company.

Colonel Schoepf came to Cincinnati early in 1919, after being mustered out of the service at the end of the World War. He enlisted as captain in the Fifteenth Engineer Corps and was mustered out as a lieutenant-colonel. At that time he became connected with the engineering department of the railway and later was made acting vice-president, then vice-president in charge of engineering, and vice-president and chief engineer in October, 1920.

Colonel Schoepf began his career in the street railway business in Washington, D. C., near which city he was born. He received his technical training at Rensselaer Polytechnic Institute, from which he was graduated with the degree of civil engineer, and at the Post-Graduate School of Johns Hopkins University, from which he received the degree as electrical engineer.

He joined the forces of the Westinghouse Electric & Manufacturing Company in 1899, and from September, 1900, to May, 1917, was connected with the British Westinghouse Company, London. The latter year he returned to a connection with the home company at Pittsburg, where he remained until he enlisted in 1917.

Mr. Sanders has been connected with the Cincinnati Traction Company for many years. He went to Cincinnati four or five years after that company was organized and leased the street railway property. He was born in Beaufort, S. C., and his early training was with transportation companies, chiefly with one of the subsidiaries of the Atlantic Coast Line. He has been assistant purchasing agent, auditor, treasurer and vice-president of the Cincinnati Traction Company.

Chicago Surface Line Promotions Announced

W. A. Hall and M. B. Quinn have been appointed assistant superintendents of transportation of the Chicago Surface Lines, reporting direct to C. H. Evenson, superintendent of transportation.

Mr. Hall started his railway career as a conductor for the old Chicago General Railway in 1899 and worked up to the position of assistant superintendent. During the receivership of that company in 1902, Mr. Hall went with the Chicago Union Traction Company as a motorman and later was appointed in turn starter, supervisor, assistant division superintendent, and division superintendent on Oct. 1, 1923.

Mr. Quinn entered the service of the Chicago City Railway as conductor in 1887 and was appointed supervisor in 1905. He rose to the position of assistant division superintendent in 1906 and in 1920 to division superintendent.

William Pasche has been appointed division superintendent of the Chicago Surface Lines. He entered the service of the Chicago Union Traction Company in 1904 as conductor and continued in that capacity until 1919, when he was appointed supervisor. In 1923 he became assistant division superintendent.

F. J. Smith has been appointed division superintendent of the Chicago Surface Lines. He entered the service of the Chicago Union Traction Company as motorman in 1904 and, except during his war service, he continued at that work until he was appointed supervisor in 1919. He rose to the position of assistant division superintendent in 1923.

Robert W. Simpson has been promoted to the position of assistant division superintendent of the Chicago Surface Lines. He has been connected with the Chicago companies since 1899, when he became a conductor of the Chicago Union Traction Company. Since that time he has served as traveling conductor and as supervisor.

J. M. Johnson has been appointed chief instructor in the train service department of the Chicago Surface Lines. Mr. Johnson has been with the Chicago companies since 1895, when he became a conductor for the West Chicago Street Railroad. He was appointed supervisor in 1910, assistant division superintendent in 1914 and superintendent of employment in 1921. He was again transferred back as assistant division superintendent in 1923.

W. F. Chase has been appointed acting auditor of the Spokane & Eastern Railway & Power Company and the Inland Empire Railroad, Spokane, Wash. He succeeds in this capacity L. C. Ream, who died recently. Mr. Chase has been with the company since 1912. He has been acting as chief clerk in the auditor's office.

Manufactures and the Markets

News of and for Manufacturers—Market and Trade Conditions
A Department Open to Railways and Manufacturers
for Discussion of Manufacturing and Sales Matters

New Locomotives for Indiana Interurban

Four new freight locomotives have been ordered by the Chicago, South Shore & South Bend Railroad, South Bend, Ind. The new locomotives are necessary to take care of the freight business of the railroad, which is increasing materially. They will be built by the Westinghouse Electric & Manufacturing Company, will have a capacity of 1,280 hp. and will cost about $55,000 each.

Freight business of the railroad has shown substantial increases since the new management opened three new freight receiving stations in Chicago. In addition to receiving freight at the Kensington and the Illinois Central South Water Street station, near the heart of the city, the South Shore Line now has freight receiving stations in Chicago at 1149 West Polk Street, Forty-first Street and Union Avenue, in the Stock Yards district, and at Sixty-third Street and Calumet Avenue, on the south side.

In addition to serving the cities between Kensington and South Bend, the South Shore Line has started through rates and service to Elkhart, Mishawaka, Goshen and La Porte, in Indiana, and Niles, St. Joseph and Berrien Springs in Michigan.

The railroad is featuring its overnight delivery. All shipments delivered to the Chicago receiving stations up to 6 o'clock in the evening are ready for delivery at South Shore Line freight stations at 7 o'clock the next morning.

J. G. Brill Company Gets Gas Car Order

The J. G. Brill Company, Philadelphia, Pa., has received an order for 25 gasoline rail cars from the South Australian Railways. This is the largest single order yet received by the company for its latest development in the transportation field. Orders for more than 60 of this type of vehicle have already been received by the company.

Interest in Manganese Steel on Increase

Increasing interest is reported in the use of rolled or forged manganese steel for use in the wearing parts of electric railway car trucks such as pedestal and journal box jaw plates, bolster and transom chafing plates, kingpins, brakepins, bushings, etc., at places where severe rubbing occurs. For many years cast manganese steel has been used in railway trackwork for switch points, frogs, mates and crossings, on account of its extraordinary toughness. Here, the essential economy of manganese steel has long been recognized in its ability greatly to prolong the life of the track. Several roads are now experimenting with this product on their car trucks, and early reports indicate very satisfactory service and greatly reduced maintenance requirements.

Babbitt Metal Consumption

Total apparent consumption of babbitt metal, based on reports received from 27 firms, was 5,441,823 lb. in August, compared with 5,184,196 in July. This consumption is calculated from sales by manufacturers and consumption by those firms (among them several important railroad systems) which consume their own production. In the following table, which is presented by the Department of Commerce, the sales of babbitt metal are shown separately from the consumption in the producing plants:

BABBITT METAL CONSUMPTION
(As Shown by Sales and Consumption by Producers in Pounds)

1925	Total Apparent Consumption	Sales (by Manufacturers)	Consumption (by Producers)
January..	5,683,182	4,620,814	1,062,368
February	5,164,619	4,103,340	1,061,279
March...	5,644,288	4,395,901	1,248,387
April....	5,126,415	3,928,135	1,198,280
May.....	5,081,667	4,189,557	892,110
June.....	5,034,965	4,085,124	949,841
July.....	5,184,196	3,694,386	1,489,810
August...	5,441,823	4,068,706	1,373,117
Total (8 mos.)	42,361,155	33,085,963	9,275,192

Harry Ransom Railway Improvement Vice-President

Harry N. Ransom, for many years connected with the Railway Improvement Company, New York, has recently been elected vice-president in charge of sales of that company. Mr. Ransom is well known in the electric railway field. He entered the services of the Consolidated Car Heating Company in 1893 and assisted in the introduction of electric railway heaters. He afterward became connected with the Christensen Engineering Company, a pioneer in the air brake field. In 1905 he went with the General Electric Company in charge of the air brake department, and later was connected with the railway department of the Westinghouse Electric & Manufacturing Company.

Mr. Ransom entered the services of the Railway Improvement Company as a sales engineer when it acquired his patented oilers. Afterward he became sales manager of the company, from which position he is now advanced to vice-president.

His experience in the lubrication of railway motors has enabled him to offer many valuable suggestions to railways for reducing motor troubles and improving their maintenance.

Metal, Coal and Material Prices

Metals—New York	Sept. 29, 1925
Copper, electrolytic, cents per lb.	14.425
Copper wire base, cents per lb.	16.50
Lead, cents per lb.	9.50
Zinc, cents per lb.	8.21
Tin, Straits, cents per lb.	59.875
Bituminous Coal f.o.b. mines	
Smokeless mine run, f.o.b. vessel, Hampton Roads, gross tons	$5.20
Somerset mine run, Boston, net tons	2.00
Pittsburgh mine run, Pittsburgh, net tons	2.075
Franklin, Ill., screenings, Chicago, net tons	1.625
Central, Ill., screenings, Chicago, net tons	1.55
Kansas screenings, Kansas City, net tons.	2.425
Materials	
Rubber-covered wire, N. Y., No. 14, per 1,000 ft.	$6.90
Weatherproof wire base, N. Y., cents per lb.	18.50
Cement, Chicago net prices, without bags.	2.20
Linseed oil (5-bbl. lots), N. Y., per gal.	$1.03
White lead in oil (100-lb. keg), N. Y., cents per lb.	0.1525
Turpentine (bbl. lots), N. Y., per gal.	$1.12

Bus Show Scheduled at Detroit

Fifteen manufacturers will display models of buses at a national bus show in Detroit, Mich., Nov. 16-21. Announcement to this effect has been made by C. E. Stone, assistant manager of the People's Motor Coach Company, Detroit, and acting chairman of the executive committee furthering the project. In addition to the manufacturers of buses who have signified their intention to take active part in the show, approximately 30 manufacturers of parts have also agreed to take space.

The show will be held at Grindley Hall. The project will not be conducted for profit, but all surplus that may be received from the exhibition, after all expenses are paid, will be returned to the exhibitors. A series of large conventions will be held in Detroit at the same time the bus show is going on, it is said.

The committee behind the show project includes: G. D. Wilcox, automotive engineer Detroit Department of Street Railways; L. H. Saunders, vice-president and general manager Reo Michigan Sales Company; A. H. Ferrandou, manager motor coach sales Graham Brothers; L. M. Bates, Studebaker Corporation; Thomas O'Dea of Thomas J. Doyle Company, Inc.; C. L. Grainger, general manager Commerce Motor Truck Company, Ypsilanti, Mich.; L. Brayton, manager Grindley Hall; Ernest M. Howe, president Gray Manufacturing Company; Gordon Lee, general sales manager Fageol Motors Company, Kent, Ohio; J. Lee Barrett, treasurer Detroit Automobile Company; W. D. Edinburn, secretary Michigan Automobile Dealers Association; W. F. Evans, president Detroit Motor Bus Company; J. W. Howe, secretary executive committee Austin F. Rement, Inc.

Rolling Stock

Scranton Railway, Scranton, Pa., has ordered the ten new cars, mention of which was made in the ELECTRIC RAILWAY JOURNAL, issue of July 18, page 114. The specifications follow:

Date of delivery.....November, 1925
Builder of car body.....Osgood-Bradley
Type of car.....Passenger, motor car
Seating capacity.....44
Bolster centers, length.....21 ft. 4½ in.

Length over all	41 ft. 10 in
Truck wheelbase	5 ft. 6 in.
Width over all	8 ft. 4½ in.
Height, rail to trolley base	11 ft. 1½ in.
Body	All steel
Interior trim	Cherry natural
Headlining	Agasote
Roof	Arch
Air brakes	Westinghouse
Axles	Osgood-Bradley, heat-treated
Bumpers	Osgood-Bradley
Car signal system	Consolidated Car Heating / Electric Service Supply
Car trimmings	O. M. Edwards
Center and side bearings	Osgood-Bradley
Compressors	Westinghouse DH-16
Control	Westinghouse K-35
Couplers	Osgood-Bradley
Curtain fixtures	Morton Manufacturing Company
Curtain material	Pantasote
Destination signs	Hunter
Door-operating mechanism	National Pneumatic
Fare boxes	Cleveland
Wheelguards	Root
Gears and pinions	Westinghouse
Hand brakes	National Brake Company
Heater equipment	Consolidated
Headlights	Ohio Brass
Journal boxes	Symington
Lightning arresters	Westinghouse aluminum cell
Motors	Four Westinghouse 510
Paint	Enamel
Registers	International
Sanders	Osgood-Bradley
Sash fixtures	O. M. Edwards
Seats	Heywood Brothers & Wakefield
Seating material	Leather
Slack adjuster	Westinghouse
Springs	Osgood-Bradley
Step treads	Kass
Trolley catchers	Earll
Trolley base	Ohio Brass
Trolley wheels	Westinghouse
Trucks	Osgood-Bradley Company
Ventilators	National Railway Appliance
Wheels	26 in. rolled steel
Special devices, etc.	Safety Car Devices

Boston & Worcester Street Railway, Boston, Mass., has been at work converting two-man cars into cars of the one-man type.

Track and Line

East St. Louis & Suburban Railway, East St. Louis, Ill., has extended its Rosemont division to Kingshighway on the East. The line formerly stopped at 49th Street. This is the second extension made by the company within a few weeks. The State Street line formerly stopped at 37th Street but a few weeks ago was extended to 42d Street.

Springfield Street Railway, Springfield, Mass., recently began construction of 1,670 ft. of trackage across the new fill near Pecousic hill which will provide double tracks from Long Hill Street to the Longmeadow line. The estimated cost is about $24,000.

Evanston Railway, Evanston, Ill., was permitted through an ordinance passed by the City Council to extend its line ¾ mile from the western terminus on Central Street to the city boundaries. All that will be done now will be the lowering of the grade.

Chicago, Ill.—An impromptu inquiry by Chicago Aldermen into the reasons for the failure of the Chicago Surface Lines to build several miles of extensions ordered by the Council has brought results from the Illinois Commerce Commission. The commission ordered the permits issued for two of the extensions and held up the others because they touched steam lines. The extensions granted are double track, one on Devon Avenue from Western to Kedzie being about 1 mile long. The other is on Cicero Avenue from Irving Park Boulevard to Montrose Avenue and is more than ½ mile long. The first will cost $225,000 and the second $150,000. Guy A. Richardson, general manager of the Surface Lines, immediately issued the orders necessary to start the work and promised that if nothing interfered with the company's schedule cars would be running on the new lines by Thanksgiving, or little more than 60 days after the issuing of the order.

Madison Railways, Madison, Wis., has laid double tracks between Division Street and Ohio Avenue and pouring of concrete has begun. Three blocks of double-tracking of the line on Atwood Avenue will be completed this year. The balance of the improvement will be made next year, when the double-tracking system will be connected with that now in operation on Fair Oaks Avenue.

New York, N. Y.—The Board of Transportation recently recommended to the Board of Estimate and Apportionment the award of contract for another section of the city's new subway system to the Arthur McMullen Company at the bid price of $3,198,100, which was the lowest of ten bids received. The section awarded extends along Fort Washington Avenue and Broadway from Overlook Terrace to Dyckman Street. The total awards to date for the construction of the Washington Heights line amount to $51,-144,752. Bids for the fourteenth section of the west side route of the city's new subway system will be received by the Board of Transportation on Oct. 6. This section extends along Eighth Avenue from 38th Street to 47th Street.

Power Houses, Shops and Buildings

Terre Haute, Indianapolis & Eastern Traction Company, Indianapolis, Ind., is spending $80,000 for the construction of a fireproof building at the East Wabash Avenue carhouse in Terre Haute to replace the one destroyed by fire last February. The size of the new structure, 300 ft. x 60 ft., makes it approximately twice as large as the old building. Steel and concrete will be the construction. The master mechanic's office is to occupy the lower floor front, extending back for a distance of 60 ft. Above it will be a second story designed exclusively for the comfort of the trainmen. It will house a recreation room, a place for dancing, a motion picture projection room, a locker room and shower baths. In addition to garage space for fifteen buses, there will be a gasoline storage room, a wash room, machine and repair shop and tire repair room in the building. This project has been referred to previously in these columns.

Milwaukee Electric Railway & Light Company, Milwaukee, Wis., recently reported rapid progress on the construction of its new $100,000 bus building, which will be located at the old carhouse site on the south side of the city. This garage, on which work is expected to be completed by Nov. 1 to permit occupancy, will provide shelter for the fleet of 130 buses operated by the company as supplemental service on city and interurban lines. Provision has been made for sufficient space for all bus equipment for many years hence. An interesting feature of the building is an arrangement eliminating unnecessary handling of equipment undergoing repairs in the garage. With this new facility all buses will be returned daily to the garage for a thorough inspection.

Trade Notes

J. W. Paxson Company, Philadelphia, Pa., dealer in foundry sands and supplies and manufacturer of foundry equipment, sand blast machinery, dust collectors, elected Albert Walton president and general manager of the company on Sept. 21. H. M. Bougher, the retiring president, was elected chairman of the board of directors. Mr. Walton has wide experience as an executive in handling companies engaged in various branches of the metal industries.

Conveyors Corporation of America, Chicago, Ill., announces the appointment of Rowland & Burns, 39 Cortlandt Street, New York City, as district engineers for New York and vicinity. The new representatives of the Conveyors Corporation will handle the sale of American steam jet ash conveyors and other conveyor specialties.

Electric Controller & Manufacturing Company, Cleveland, Ohio, announces the appointment of Eicher & Bratt, Seattle, as representatives for the sale of "EC&M" control equipment in the states of Oregon, Washington, the Panhandle district of Idaho and Alaska. The firm of Eicher & Bratt is made up of technical men having a wide experience on power equipment and industrial electrical equipment.

Morton Manufacturing Company, Chicago, Ill., announces the appointment of G. R. Ingersoll of the Associated Materials Company, with offices at 935 Schofield Building, Cleveland, as its exclusive and direct representative covering the sale of its Acme line of railway appliances throughout the Cleveland district.

A. C. Bruhn, formerly with White and the Superior Motor Coach Body Company, Lima, Ohio, is now with the Acme Motor Truck Company, Detroit, in its coach (body) division.

New Advertising Literature

Fageol Motors Company, Kent, Ohio, has issued a pamphlet entitled "What Size Bus." Besides discussing the proper size for a motor bus, the pamphlet contains a table showing the comparative cost per mile of operating two good motor coaches, in city type service, on the same type chassis and one on a "light" chassis.

Economy Electric Devices Company, Chicago, Ill., has issued in pamphlet form a reprint from the ELECTRIC RAILWAY JOURNAL of July 18, 1925, entitled "Installation of Economy Meters Reduces Maintenance Costs in St. Louis."

Alexander Milburn Company, Baltimore, Md., has issued Bulletin No. 200A with illustrations of the standard Milburn gas regulators used in welding.